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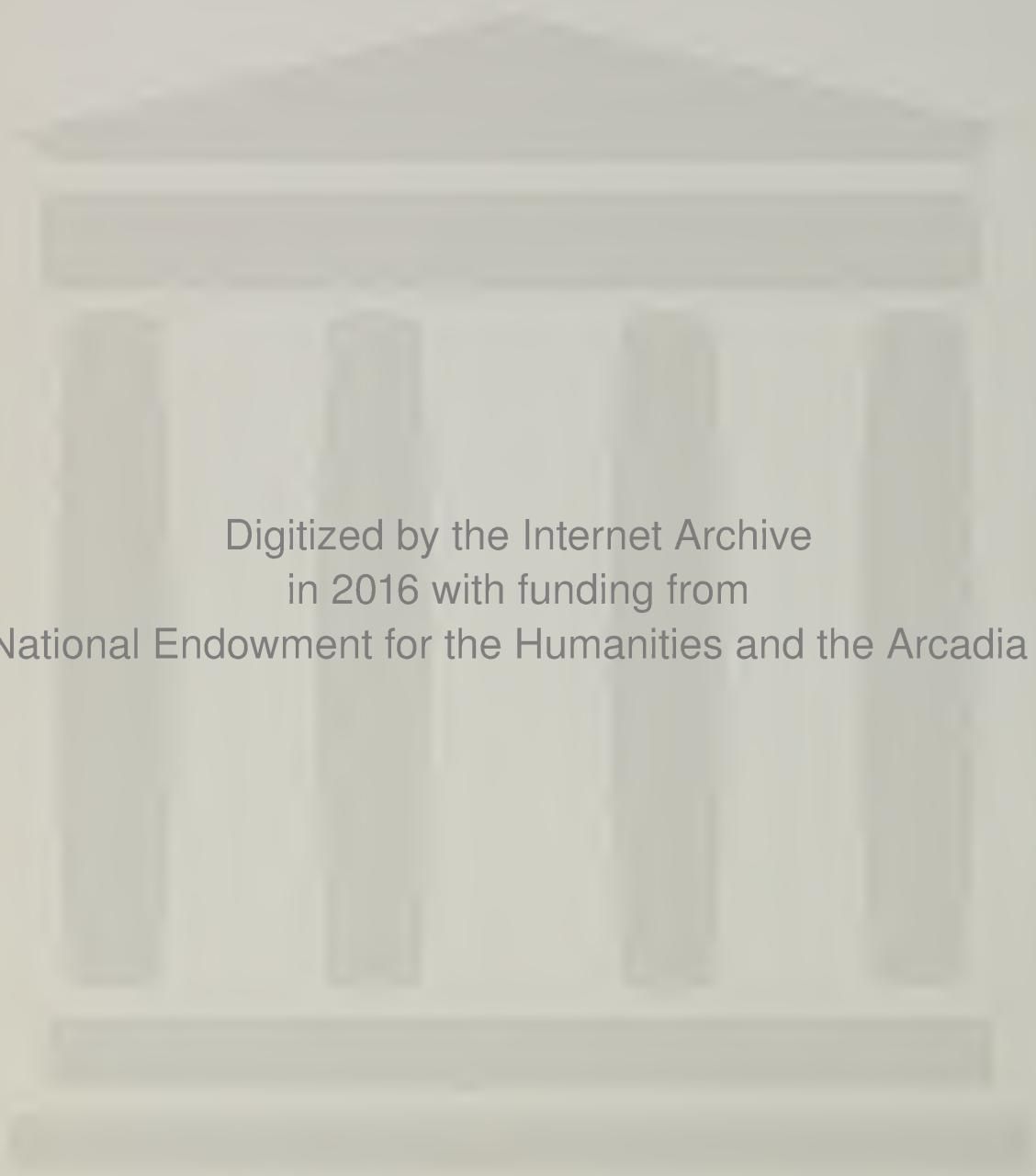

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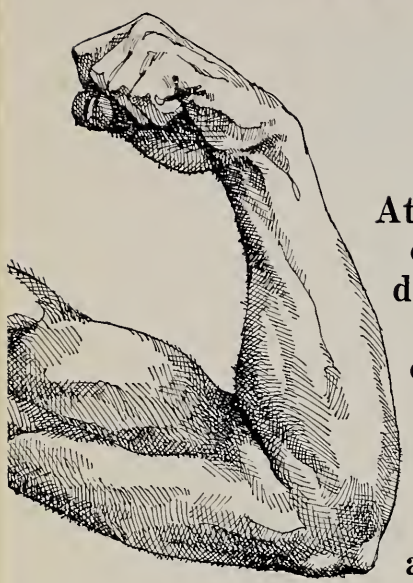
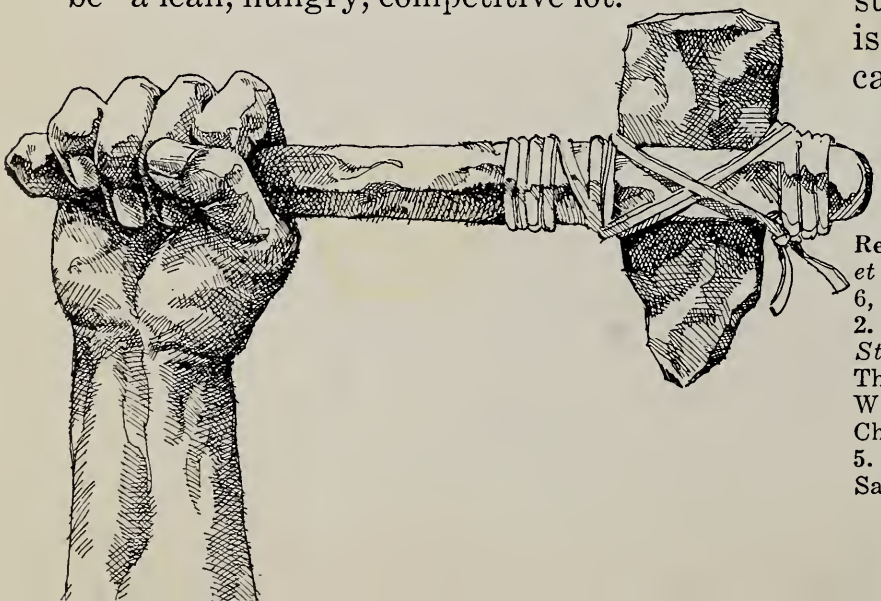


At least seventy-five out of one hundred adults with duodenal ulcers are men.[1] Why? It may be significant that duodenal ulcer patients tend to crave recognition and are "especially vulnerable to threats to their manly assertive independence."[2]

Hypersecretion—an atavistic response. Stewart Wolf, who, with Harold G. Wolff, studied the personalities of duodenal ulcer patients, wonders if masculine competitiveness is related to "an atavistic urge to devour an adversary." It is striking, he reports, that an accentuation of gastric acid secretion and motility can be "induced in ulcer patients by discussions that arouse feelings of inadequacy, frustration and resentment."[2]

By chance? A lean, hungry lot. Was the link between emotions and gastric hyperacidity acquired through mutation to serve a purpose? During man's jungle period of evolution, the investigator points out, a male dealt with a foe by killing and devouring it. "It may be more than coincidence," he concludes, that peptic ulcer patients appear to be "a lean, hungry, competitive lot."[3]



Big boys don't cry. If more men cried maybe fewer would wind up with duodenal ulcers. But men will be men—the sum total of their genes and what they are taught. Schottstaedt observes that when a mother admonishes her son who has hurt himself that big boys don't cry, she is teaching him stoicism.[4] Crying is the negation of everything society thinks of as manly. A boy starts defending his manhood at an early age.

Take away stress you can take away symptoms. There is no question that stress plays a role in the etiology of duodenal ulcer. Alvarez[5] observes that many a man with an ulcer loses his symptoms the day he shuts up the office and starts out on a vacation. The problem is, the type of man likely to have an ulcer is the type least likely to take long vacations or take it easy at work.

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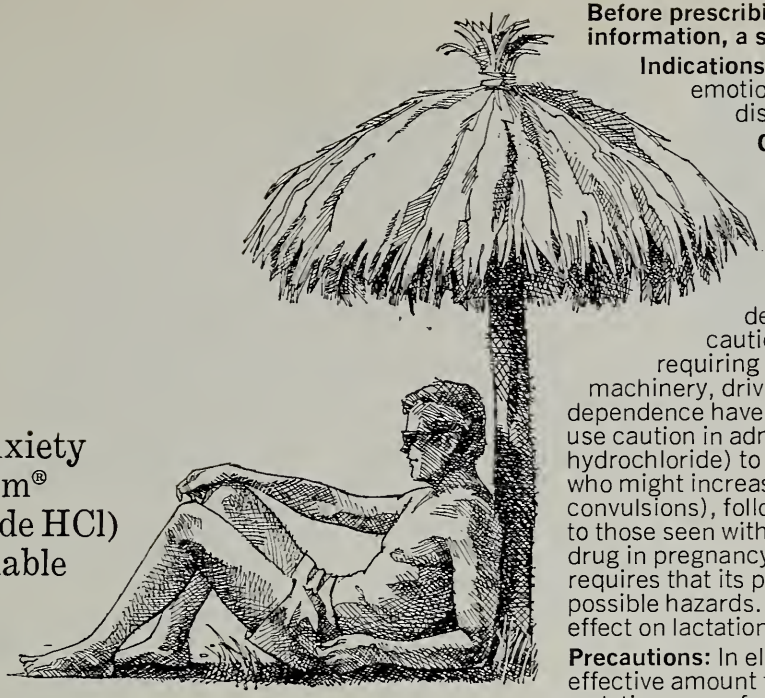
References: 1. Silen, W.: "Peptic Ulcer," in Wintrobe, M. M., *et al.* (eds.): *Harrison's Principles of Internal Medicine*, ed. 6, New York, McGraw-Hill Book Company, 1970, p. 1444. 2. Wolf, S., and Goodell, H. (eds.): *Harold G. Wolff's Stress and Disease*, ed. 2, Springfield, Ill., Charles C Thomas, 1968, pp. 68-69. 3. *Ibid.*, p. 257. 4. Schottstaedt, W. W.: *Psychophysiologic Approach in Medical Practice*, Chicago, Ill., The Year Book Publishers, Inc., 1960, p. 163. 5. Alvarez, W. C.: *The Neuroses*, Philadelphia, Pa., W. B. Saunders Company, 1951, p. 384.



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Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering Librium (chlordiazepoxide hydrochloride) to known addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards. As with all anticholinergic drugs, an inhibiting effect on lactation may occur.

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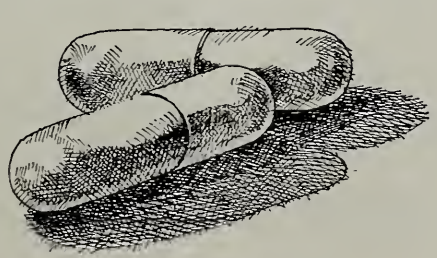

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CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

LOREN P. PETERSON, M.D., FACOG*
Obstetrician-Gynecologist-Discusser

JOHN F. BARLOW, M.D., FCAP**
Pathologist-Editor

TWENTY-SEVEN YEAR OLD MOTHER WITH AMENORRHEA AND LOWER ABDOMINAL PAIN

CASE NO. 70-3161

This 27-year old mother of two normal children with a history of one miscarriage entered Sioux Valley Hospital with a chief complaint of left lower quadrant crampy abdominal pain of several months duration.

The pain had become much more severe in the past 48 hours and the patient had had a vaginal discharge over this time which was darkish brown at the beginning, but became pink to red in color in the last day. The pain in the left lower quadrant was described as crampy and severe. There had been nausea and vomiting and a feeling of generalized aching throughout her whole abdomen. The patient had had a normal menarche and menstrual periods until approximately 6 months prior to admission when she developed intermenstrual bleeding. A dilatation and curettage at that time revealed proliferative endometrium. Pelvic examination had shown an ovarian cyst on the right described as about the size of a ping-pong ball. The left ovary was not palpable. However, during the last several days there was extreme tenderness, but no palpable mass in the left adnexal region. The patient had no dysuria, frequency or urinary complaints. She had had normal bowel movements. There had been no fainting spells. Past history and family history were otherwise negative. Physical examination revealed a well-developed, well-nourished female with a temperature of 99.6, blood pressure 116 systolic and 60 diastolic. Pulse 84/minute and regular and respiration 20/minute. Height 5 feet and 6 inches, weight 160 pounds. Examination of the head and neck was unremarkable. The heart and lungs showed no abnormality to examination. The breasts showed no changes of pregnancy and no palpable masses. Examination of the abdomen disclosed no enlargement of liver or spleen. There was localized tenderness in the left suprapubic region. Questionable rebound was present, but no true rigidity. On pelvic examination there was a mild erosion of the cervix and a 2.5 x 3 cm. cyst was felt in the region of the right ovary. There were no definite masses on the left, but extreme tenderness in this region. The uterus was posterior and had a rough feel. Rectal examination was negative. Examinations of extremities and reflexes were unremarkable.

CLINICAL PATHOLOGY DATA: Urine — straw-colored, specific gravity 1.007, pH — 5.5, negative for protein, glucose, hemoglobin, and bile. There was a small amount of ketones. Microscopic of the urinary sediment showed 0-2 white cells/hpf and occasional epithelial cells and there were a few bacteria. Admission hgb. was 14.7 gm/100 ml, red count 4.82 million/mm^3, hct. 41 Vol%, mean corpuscular hemoglobin 30 micromicrograms, mean corpuscular volume 86 cubic micra and mean corpuscular hemoglobin concentration 36%, total leukocyte count 9,000/mm^3 with 59% polymorphonuclear leukocytes, 1% neutrophilic bands, 40% lymphocytes. The red cells were normochromic, normocytic and the platelets appeared adequate on smear. The erythrocyte sedimentation rate was 16 mm/hr. Two pregnancy tests were negative. A pregnancy test before admission in the office had been questionably positive. Prothrombin time 12 sec. with an 11 sec. control, partial thrombolastin time 27 sec. with a 32 sec. control.

A chest film was normal. A flat plate and upright of the abdomen were unremarkable. An

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operation was performed.

DR. LOREN P. PETERSON: This case presents a difficult diagnostic problem.

I will be interested myself as to what the diagnosis is. To recapitulate the history, we have a 27 yr. old Para 2 0 1 2 who was probably married, with the history of crampy left lower quadrant abdominal pain for a long time. Over 48 hrs. prior to admission she had a history of increasing severe left lower quadrant pain with a history of vaginal discharge that turned into bleeding coincident with the onset of the severe abdominal pain. She also had some gastrointestinal disturbances as manifested by nausea and vomiting. Her physical examination was significant in that she had a normal temperature. She also had a right ovarian cyst 3 cm. in diameter. There was extreme left lower quadrant tenderness without a mass. It should be noted, however, that patients with extreme tenderness such as this lady may have a mass which is not palpable because of the tenderness and spasm. Otherwise, the patient had been in good health except for the crampy abdominal pain.

In discussing the differential diagnosis I think we will try to steer away from the esoteric conditions. First we have to note that this patient had extreme left lower quadrant tenderness. What can cause left lower quadrant tenderness? It has to be an acute condition, an inflammatory condition of some sort, or endometriosis. One of the most common inflammatory conditions could be a unilateral salpingitis or P.I.D. (pelvic inflammatory disease). Ectopic pregnancy is obviously a strong consideration. Tortion of an ovarian cyst or tortion of a tube are conditions which are seen. Endometriosis, as I have said, is a strong possibility. I will also mention diverticulitis of the colon, a condition which I have never seen in a patient this young. I have seen it in a patient of 32. However, there is no history of constipation, bloody stools, or diahrrea in our patient today.

What would lead us to suspect a pelvic inflammatory disease? I think you have to think of it in any woman with lower abdominal pain. Very significant is the history of vaginal discharge coincident with the onset of a period. Pelvic inflammatory disease with salpingitis will often do this. The pain is usually on both sides of the pelvis. This patient has only left lower quadrant pain. An ectopic pregnancy can certainly give exquisite tenderness. The patient did have one positive pregnancy test. In 80% of patients with ectopic pregnancy you can feel a pelvic mass. This patient did have one. A 100% will be tender and she does have the tenderness. Only 30% however, will have a positive pregnancy test. If the pregnancy test is positive, it is helpful. This patient had a positive test followed by negative pregnancy tests. One would be hard put to rule out ectopic pregnancy. I am sure this is why the physicians in this case operated on the patient. I have become fairly disenchanted with the pregnancy test. I have seen several false positives. I do not know whether this is because the tests are too sensitive detecting low levels of chorionic gonadotropins.

DR. BARLOW: What kind of test are you doing?

DR. PETERSON: We are using the Gravindex (latex agglutination inhibition.) I have had several false positives in my clinical practice and one in my hospital practice.

Often preceding ectopic pregnancy there will be a previous history of pelvic inflammatory disease which predisposes to ectopic pregnancy. Seventy to eighty per cent of patients with ectopic pregnancy have vaginal bleeding. Fifty to seventy per cent will have a history of a missed period. We do not have information as to when exactly the patient's last menstrual period was.

If the patient had a tortion of a cyst, a mass probably would have been felt. I will exclude that diagnosis. As far as endometriosis is concerned, there was some roughness felt on the posterior aspect of the uterus. There are, however, several points against the diagnosis of endometriosis. The patient is young and she has a history of several successful pregnancies. Patients with endometriosis are usually infertile. About two-thirds of the patients with endometriosis have menstrual difficulties. However, about one-third of the patients with endometriosis have no menstrual problems in spite of positive physical findings.

Now what about the laboratory? She had a white count of 9,000/mm^3. Chest X-ray, flat plate of the abdomen did not reveal any abnormalities. A urinalysis was perfectly normal. She also had the two negative pregnancy tests. What other tests would I want?

If I were thinking of pelvic inflammatory disease very strongly I would want a gram stain smear from the cervix and a culture for gonococcus. I noted in a recent public health

survey that there were only 2 cases reported from Minnehaha County in some extended period of time. This is obviously ridiculous.

*DR. D. G. ORTMEIER: We had that many cases last week.

DR. PETERSON: The other procedure I would like to use especially since I am thinking about an ectopic pregnancy is a culdocentesis. There are very few contraindications to this procedure. One is if the patient has an ovarian cyst which might rupture. The second is if a patient has endometriosis with a fixed retroversion of the uterus. Under these conditions you cannot do culdocentesis. Culdocentesis has been very helpful to me in several situations. First, if you get blood you have to do a laparotomy on the patient because you probably have an ectopic pregnancy. The blood is characteristically nonclotting supposedly because it has already clotted and the clot has lysed. If you get nothing back from the culdocentesis, I think you are justified in sitting and waiting 24 or 48 hours if the patient is in the hospital. In 48 hours other signs of an ectopic pregnancy may manifest themselves. Therefore, culdocentesis is helpful if it is positive; and it is helpful if it is negative because it allows you to wait.

Secondly, if the patient has pelvic inflammatory disease or appendicitis you get back fluid with a lot of inflammatory cells as opposed to the usual clear serous peritoneal fluid. There is a lot of information that can be gained by the gross and microscopic examination of this peritoneal fluid. You can diagnose gonorrhea this way and you can diagnose an infection by E. coli in this manner by culture. Another reason for doing culdocentesis is to study the fluid for malignant cells as can be seen in various ovarian tumors. I have never found this of much help, however. Culdocentesis is an easy procedure and has very few complications.

I do not really think this patient had diverticulitis but a barium enema might have helped make that diagnosis. Also you can occasionally pick up endometriosis on barium enema. The sigmoid colon also may be displaced by a mass which is not palpable. There is a risk in doing a barium enema. If you do this procedure on a patient with acute pelvic inflammatory disease, you can get a severe ileus.

A procedure with a low risk and high yield of information is an intravenous pyelogram. If the patient has a pelvic mass, you want to make sure it is not a kidney in the pelvis. You may see displacement of the ureters by a mass or endometriosis involving the ureters.

There are other procedures which may be helpful. These are ones which I do not do. This would be either culdoscopy or laparoscopy. Some physicians would use one of these procedures and if they can see an ectopic pregnancy they excise it through the culdoscope or laparoscope. I feel that neither of these is that helpful and I would go another route in possibly using a culpotomy. This is simply opening up the cul-de-sac, pulling down the tubes and examining them. If the patient has an ectopic, salpingectomy can be done by this vaginal procedure. You may thus save the patient some hospitalization by avoiding a laparotomy.

It is important to remember that only one or two patients out of 100 with ectopic pregnancy will have a fever. Ectopic then should strongly be considered in this case.

**DR. WARREN JONES: How does this compare in patients with pelvic inflammatory disease?

DR. PETERSON: Patients with pelvic inflammatory disease often have higher temperature around 101°F. or 102°F. and are considerably more toxic. We find this in about 70-80%. The erythrocyte sedimentation rate is often normal in acute pelvic inflammatory disease. The erythrocyte sedimentation rate is often normal in acute appendicitis. It has often been stated that a differential between appendicitis and pelvic inflammatory disease is that there is an elevated sedimentation in the latter. However, as I say, in acute salpingitis there may be a normal sedimentation rate.

I would also like to know whether this patient was using some method of contraception. If she was, I would worry a little less about an ectopic pregnancy. Unless she were using an intra-uterine contraceptic device. There is often an increase incidence of ectopic pregnancy with pelvic inflammatory disease or with an intrauterine device. Does anyone have any questions?

DR. PETERSON'S DIAGNOSES

1. ECTOPIC PREGNANCY

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2. POSSIBLE PELVIC INFLAMMATORY DISEASE

DR. WARREN JONES: Why is there an increase incidence of ectopic pregnancy with intrauterine devices?

DR. PETERSON: One explanation is that the IUD interferes with or slows down the transport of the egg. However, I do not believe anybody really knows. It is also not known why there is an incidence of low grade pelvic inflammatory disease with IUD so perhaps you are putting a foreign body in the uterus and this causes problems. I think most pathologists will tell you that there is a low grade endometritis in most hysterectomy specimens from patients who have had intrauterine devices. There is often an associated low grade salpingitis. Theoretically this may lead to tubal obstruction and ectopic pregnancy.

*DR. B. J. WILLIAMS: I think it should be understood that there is a decrease in incidence of pregnancies with intrauterine devices. However, there is a disproportionate number of ectopic pregnancies in these patients.

**DR. RICHARD A. JAQUA: I would like to hear you discuss a little bit more the procedure of culdoscopy.

†DR. M. G. MUTCH: There's too much fussing around. I used to do quite a few culdoscopies when I first came. However, you have to often give the patients spinal or general anesthesia. After culdoscopy you make a diagnosis, and then often have to do another procedure such as laparotomy. Also a retroverted uterus or blood may obscure your view during this procedure. I would much rather do a culpotomy. If you get blood and have an ectopic pregnancy, you can remove most of them from below. If you get an infection, you can put a drain in.

My problem with culdocentesis is that often the patient is extremely tender and the patient requires anesthesia. If this is the case, I would rather do a culpotomy first. In other words, I don't feel the culpotomy adds much more to doing a culdocentesis because you frequently have to do a further procedure anyway. This has just been my experience.

†DR. B. J. WILLIAMS: Often the diagnosis of an ectopic pregnancy is obvious. However, in a very difficult case such as the one we have today, there are often adhesions from pelvic inflammatory disease or endometriosis with retroversion of the uterus and your culdocentesis does not give you the necessary information when you most desire it. In culdoscopy often complete visualization is impossible. I can remember one case in which all that was not visualized was one portion of one tube and that's where the patient ruptured her ectopic the next day. When you read the literature which is written by enthusiastic culdoscopists, I think you have to realize that this procedure has a place but only as adjuvant. It is certainly not the answer for all cases. It is also not a benign procedure. You can certainly perforate the bowel.

DR. PETERSON: I would certainly agree that in my training our experience was that culdoscopy often did not add much and had risk of a certain amount of complications. I think perforation of the bowel during culdoscopy is a significant risk. Culdocentesis, however, has been a very key procedure for me. We did quite a number because we were looking for exfoliated cells from ovarian tumors and culdocentesis became almost a simple office procedure. Just raising up the cervix and placing a needle in the cul-de-sac yields fluid in nine out of ten cases.

††DR. D. G. ORTMEIER: What was your yield in finding tumor?

DR. PETERSON: I never found one. In fact our whole institution hadn't found one.

DR. MUTCH: What size needle did you use?

DR. PETERSON: Size 18 or 20.

DR. MUTCH: In my experience many patients with tenderness are extremely difficult to examine. After you put them under anesthesia, examinations become considerably easier. At that time a culpotomy is extremely easy to perform. I might add that I have never seen an ectopic pregnancy that didn't have vaginal bleeding. Dr. Peterson said that the literature says only 70-80%. However, I have never seen one that didn't bleed through the vagina.

DR. B. J. WILLIAMS: In my experience, patients with ectopic pregnancy have three things

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††General Practitioner, Sioux Valley Hospital, Clinical Faculty, School of Medicine, University of South Dakota.

in common: 1) abnormal vaginal bleeding, 2) pain, and 3) amenorrhea. The protocol does not tell us very well exactly when the patient's last menstrual period was, John.

DR. BARLOW: The patient had been examined several times since the previous dilatation and curettage. The cyst on the right had decreased in size. The patient had had one normal menstrual period after the dilatation and curettage but none for three months prior to admission.

DR. B. J. WILLIAMS: I would also like to have known when the dilatation and curettage six months prior to admission was done in the cycle. It could be that this means the patient had an ovulation.

*DR. J. LAMBERT: Dr. Peterson, do you consider a dry tap means that you can watch or does it mean that you weren't in the cul-de-sac?

DR. PETERSON: I think it means you can watch. I have never had an ectopic with a negative tap.

DR. MUTCH: I wish you would discuss your method of tubal ligation.

DR. PETERSON: We do a fimbriectomy which is removal of the terminal portion of the tube. There have been no cases of pregnancy that I know reported after this procedure. This includes 20 yrs. of experience in the Los Angeles area with this procedure. I think that fimbriectomy avoids adhesions that you get with a Pomeroy procedure. There are no portions of necrotic tube which can give rise to adhesions. This also prevents instances in which you get cystic ovaries.

DR. RICHARD A. JAQUA: This would mean irreversible sterility, would it not?

DR. PETERSON: Yes.

DR. MUTCH: Almost all tubal ligations are irreversible. Tuboplasties have been notoriously ineffective.

DR. BARLOW: I would like to mention a couple of things. First, as has been suggested gonorrhea is an increasingly frequent disease. We have available a method of diagnosing this disease through the use of Thayer-Martin medium. If a specimen is carefully taken from the urethra or cervix of the female, we can grow this organism. We have had problems with overgrowth of other organisms preventing growth of the gonococcus due to our own technical problems of not planting the organism soon enough, but the medium is a good one. I would like to emphasize that in the female a specimen must be taken from the cervix or urethra. A vaginal swab is absolutely worthless both for gram stain and culture.

The other point is with pregnancy tests. I share your lack of enthusiasm as a pregnancy test can give both false positive and false negative results. I think that the numbers of these misleading results can be decreased, however, by certain precautions. If there is blood or protein in the urine, the latex agglutination inhibition tests often will give false positives. Therefore, we test for both of these before we perform the examination. The problem with fluctating positive and negative tests can be explained in at least two ways. One is that the level of human chorionic gonadotropin will fluctuate especially in abnormal pregnancies. The other is that the concentration in the urine of this hormone may fluctuate because of dilution or concentration of the urine according to fluid intake. For this reason we often do a specific gravity when reporting a pregnancy test.

In spite of the above precautions, we have had a number of false positive pregnancy tests I cannot explain. These include patients with tuberculous peritonitis and pelvic inflammatory disease. We had a conference such as the one today on a patient who had a false positive pregnancy test with a degenerating fibroid. There is one type of false positive pregnancy test, however, which may be avoided. In patients over the age of 40 in the menopausal or pre-menopausal age group an increase in pituitary gonadotropin occurs. This may cause a false positive pregnancy test. These false positives usually occur with more sensitive varieties of pregnancy tests such as the red cell hemagglutination inhibition tests rather than the latex aglutination inhibition tests. We have therefore adopted the following policy — In patients under the age of 40, we do the less sensitive latex agglutination inhibition test. If this is positive, we do no more. If it is negative, we go on and do the more sensitive red cell hemagglutination inhibition test. However, over the age of 40 we do only the less sensitive latex agglutination inhibition test because of the known false positives with the other technique. Dr. Sweeney, would you like to discuss the findings of operation in this case?

*Intern, Sioux Valley Hospital.

*DR. LLOYD SWEENEY: This was a patient of Dr. Robert Quinn's and he did the previous dilatation and curettage. I thought the patient had an ectopic pregnancy but we were surprised at operation.

DR. BARLOW: I will read part of Dr. Quinn's operative note. "A lower abdominal midline incision was made and the peritoneal cavity was opened. A small amount of free peritoneal fluid of a brownish color was noted in the region of the cul-de-sac. On the left tube and ovary there was a cauliflower-type of lesion measuring approximately 3 cm. in diameter. This grossly appeared to be malignant. On the posterior side of the uterus there were several cystic nodules. One nodule was noted well down on the utero-sacral ligament on the right. The bowel was essentially normal and no evidence of tumor formation was found. The liver was negative to palpation. No para-aortic lymph nodes were palpable. No nodes were palpable in the pelvic region. Dr. Barlow was called in consultation and did a frozen section and reported 'adenocarcinoma of the left ovary'."

The first slide shows the uterus with the papillary tumor on the left. Here is a higher power of this ovary (Figs. I, II). Microscopic

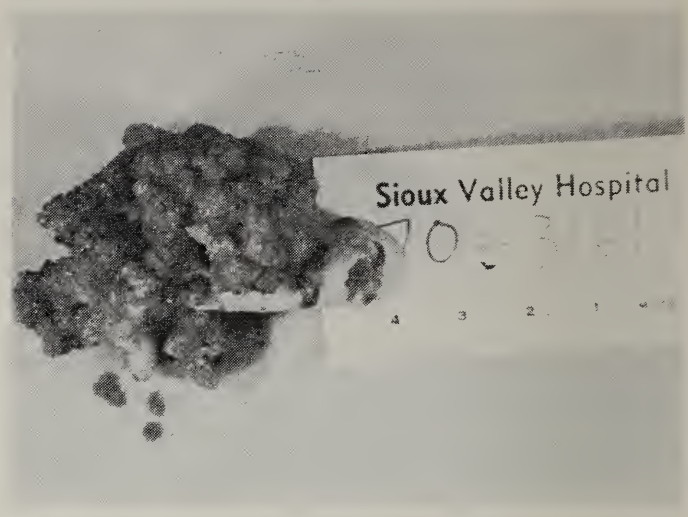
Figure I.

Papillary lesion replacing ovary easily visible.

examination shows lesion (Fig. III) with a papillary configuration. Higher power shows a piling up with mitoses and nuclear atypicality. On the opposite ovary implants with glands and psammoma bodies were seen (Fig. IV & V). There was also endometriosis in the cul-de-sac. A surprising finding was in the uterus itself. There was an early intrauterine pregnancy. This photomicrograph shows the chorionic villi

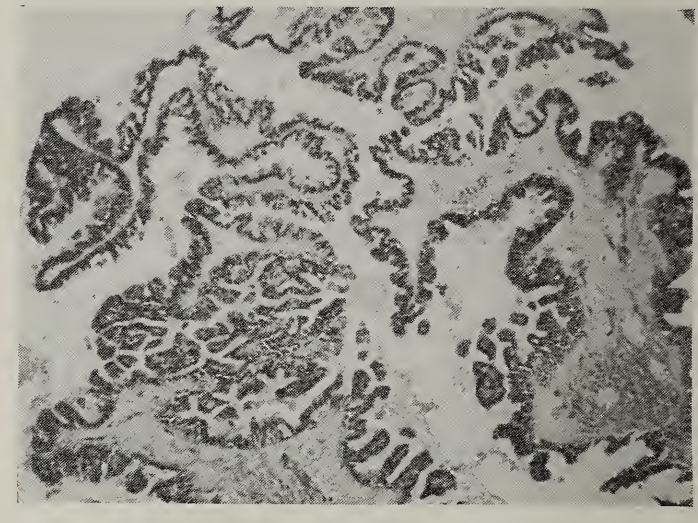
*General Practitioner, Sioux Valley Hospital.

Figure II.



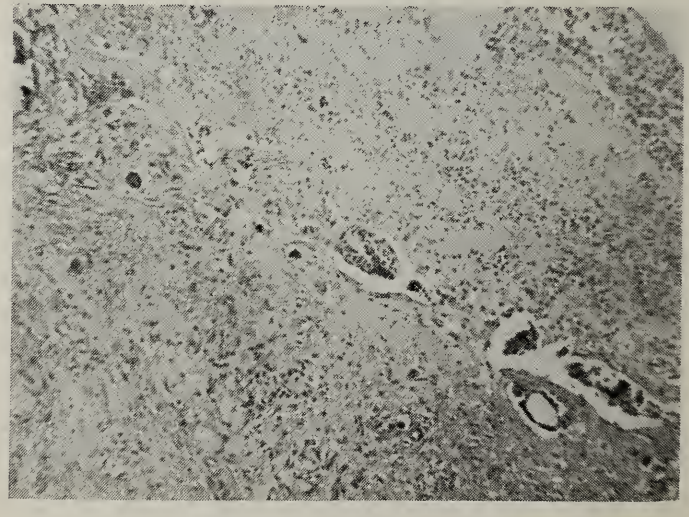
Higher power to show papillary nature of ovarian lesion.

Figure III.



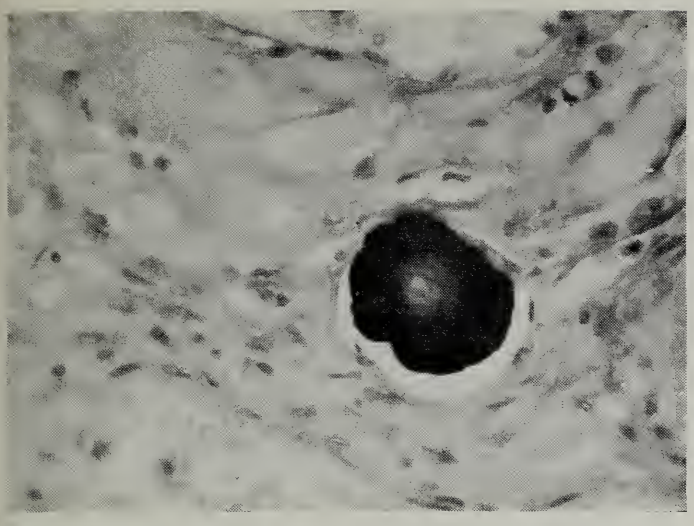
The microscopic papillary nature of the lesion with piling up of nuclei are illustrated.

Figure IV.



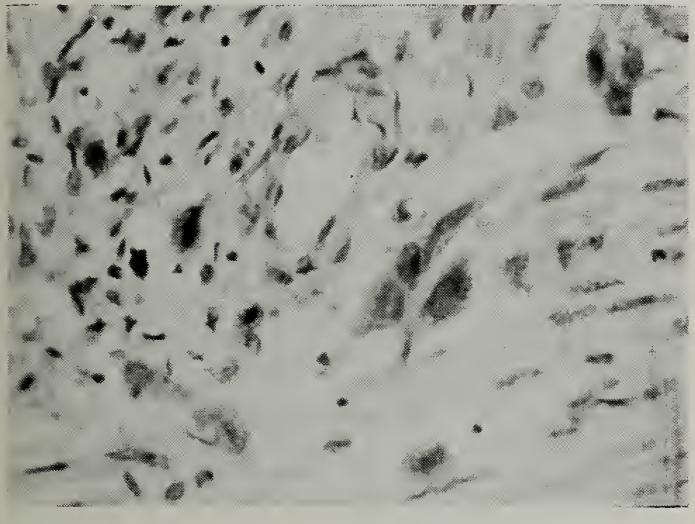
Implants of opposite ovary.

Figure V.



Psamomma body — a calcified body often seen in serous tumors of the ovary.

Figure VI.



Large hyperchromatic cells represent trophoblastic cells infiltrating myometrium (a normal phenomenon).

and the following shows the trophoblastic cells infiltrating the surrounding myometrium. (Fig. VI). I simply show these slides to note the marked atypicality of the cells which infiltrate the myometrium. This is often called syncytial endometritis by pathologists and can be mistaken for malignancy. It is normal for trophoblast to show this pattern.

FINAL ANATOMIC DIAGNOSES

1. RIGHT OVARY - SURFACE PAPILLARY SEROUS ADENOCARCINOMA
2. RIGHT FALLOPIAN TUBE - NO MICROSCOPIC ABNORMALITY
3. LEFT OVARY - CORPUS LUTEUM OF PREGNANCY
4. IMPLANTS OF PAPILLARY CARCINOMA
5. ENDOMETRIOSIS OF PELVIC PERITONEUM
6. LEFT FALLOPIAN TUBE - NO MICROSCOPIC ABNORMALITY
7. UTERUS - EARLY INTRAUTERINE PREGNANCY
8. ENDOMETRIUM - GESTATIONAL ENDOMETRIUM
9. SURFACE OF UTERUS - ENDOMETRIOSIS

I would like for a minute to discuss the most common types of ovarian tumors and these are tumors that arise from the surface epithelium of the ovary and the ovarian stroma. These tumors include the following categories:

TABLE I.

CLASSIFICATION OF OVARIAN NEOPLASM

1. Tumors of Surface-Epithelial and Ovarian-Stromal Origin
   (Common Epithelial Tumors)
   (Predominantly Cystic)

A. Serous	
B. Mucinous*	Benign
C. Endometrioid	Borderline
D. Clear cell ("mesonephric")	Malignant
E. Brenner*	
F. Mixed forms of A-E*	
G. Adenocarcinomas & undifferentiated carcinomas, otherwise unclassifiable	

* Other origins possible

From the following list of comparative incidence of ovarian carcinomas at operation you can see that the group of tumors under discussion namely, serous, mucinous and endometrioid as well as undifferentiated carcinomas and adenocarcinomas constitute the largest proportion of ovarian carcinomas.

TABLE 2.

COMPARATIVE INCIDENCE OF OVARIAN CANCERS AT OPERATION

Serous borderline tumor	10-15%
Serous carcinoma	25-35%
Mucinous borderline tumor	5-10%
Mucinous carcinoma	5-10%
Endometrioid borderline tumor	1-2%
Endometrioid carcinoma	15-20%
Clear cell carcinoma	4-6%
Undifferentiated carcinomas and adenocarcinomas, otherwise unclassifiable	5-10%
Dysgerminoma	1-2%
Embryonal teratoma	1-2%

Malignant tumors in dermoid cysts	1-2%
Granulosa cell tumor	5-10%
Metastatic carcinomas	4-8%
Others	1-2%

Tumors of the surface epithelium and ovarian stroma are classified according to their epithelial cell type serous-meaning tubal-like epithelium; mucinous meaning mucus-secreting cervical-like epithelium; and endometrioid meaning endometrial-like epithelium. The mucinous variety is the old so-called pseudomucinous variety. These tumors may be cystic with various proportions of solid components. The gross features depend upon the amount of epithelium which gives rise to fluid-filled cysts and the amount of stromal involvement which gives rise to fibrous protions. Anything from a single or multicolored cystic structure through a fibrous-type tumor with small cysts can be seen. This gives rise to quite a large number of names such as cystoma, cystadenofibroma, adenofibroma etc. All these simply describe the variation in epithelial or stromal proportions.

Whether these tumors are benign or malignant depends on two criteria. One is a cellular criterion and is dependent on the amount of nuclear atypicality, number of mitoses, amount of piling up and disorganization of the epithelium. The second depends on the presence or absence of invasion of the stromal component by the epithelial component. Using these two criteria, the tumors may be divided into benign, borderline, or malignant categories.

Benign tumors show no atypicality and no invasion of stroma. Borderline tumors show cellular atypicality but no invasion of stroma. Malignant tumors show both cellular atypicality and invasion of stroma.

The benign and malignant categories are quite simple but those in the borderline category are a problem for everyone. I prefer to call the borderline lesions low grade malignancies. The way the borderline category is separated out is that it has nuclear atypia, but does not have stromal invasion of the epithelial component into the stromal component. Does this have a clinical significance? The five year survival on borderline or low grade carcinomas is 76%, the 10 year follow-up shows a 74% survival. Malignant varieties histologically show 13% survival at 5 years. Therefore, you can see that the borderline tumors or low grade malignancies have a much better prognosis. They have late recurrence, a leisurely course, and occasionally have manifested spontaneous regression. Even if borderline tumors are not completely removed, the prognosis is still good.

Another problem which often comes up is if this tumor is unilateral in a young woman, what should be done with the other ovary? I would like to mention that ⅔ of all cases of this group of epithelial and stromal malignancies are bilateral. If you take a single tumor with no extension beyond the uterus or tubes or ovaries, one-third are bilateral either grossly or microscopically at operation. The incidence of bilaterality is increased in malignant as compared to benign tumors. With these figures, I recommend removal of the other ovary, uterus, and tubes in cases with this type of tumor particularly if it shows any indication of malignancy.

Although I have called the small patches of tumor on the opposite ovary in this case implants, I probably have no right to do so because I think they are really second primaries. It is hard for me to absolutely prove such a contention. However, I think that there are a number of cases in which there have been bilateral tumors with no extension elsewhere in the malignant variety and bilateral benign tumors in such numbers that one could easily suggest that the ovaries are exhibiting bilateral neoplastic transformation rather than metastasis from one ovary to the other.

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BLUE SHIELD TESTIFIES ON NATIONAL HEALTH INSURANCE

Orderly priorities to improve health care delivery and financing, a practical approach to catastrophic coverage, and regulation of carriers were advocated by the National Association of Blue Shield Plans in testimony before the House Ways and Means Committee. Ned F. Parish, NABSP president, told the Committee which is considering various national health insurance proposals that Blue Shield believes health care priorities should be established and priced realistically to achieve specific goals. This, he said, should lead to a defined national health care policy capable of changing progressively as the priorities change and as new objectives emerge.

FIFTH ARTICLE IN SERIES

PULMONARY ASPERGILLOSIS

by

S. Sochocky, M.D., F.C.C.P.*

Aspergillosis is a fungus infection caused by Aspergillus, of which there are many species. However, the species Aspergillus fumigatus and rarely Aspergillus niger may produce disease in man. Micheli[1], in 1729, described a fungus which he named Aspergillus. According to Greer[2], Bennett, in 1842, recognized aspergillosis as a clinical entity. Virchow[3], in 1856, published 4 autopsies of proven cases of aspergillosis in which secondary infection by this fungus of existing lung disease occurred. Since then several authors have reported cases of primary and secondary aspergillosis.

Aspergillosis is world wide in distribution having been reported from all parts of the world. Aspergillosis is said to be more common in males than in females and does not show racial predilection. Aspergillus fumigatus is widespread in nature, especially among pigeon feeders, wig makers; is present in soil, hay, straw and rotting wood. The spores of Aspergillus is also said to be present in vegetation, feathers of fowl and fur of animals. These spores enter the body by inhalation into respiratory tract; their invasive power depends on quantity of inhaled spores and physical condition of person inhaling the spores. Disease most likely originates in lungs in most cases, either as a primary or secondary infection and may also spread by hemotogenous route. There is no definite evidence that disease is transmitted from man to man.

*Department of General Medicine, Veterans Administration Center, Sioux Falls, S.D.

Aspergillus fumigatus may cause lesions in various parts of the body, skin, skeletal, central nervous systems and respiratory tract. Aspergillus niger is often associated with infection of external ear, however, may also affect lungs. There are various factors which favor development of aspergillosis, especially debilitating condition of the body, such as pre-existing disease as pulmonary tuberculosis; lowered resistance in patients due to antibiotic treatment given for pre-existing disease, in patients receiving steroid or immuno-suppressive therapy or after some surgical operations.

Aspergillus commonly invades respiratory tract. Young[4] et al. described a series of 98 patients with pulmonary aspergillosis and 60 of them had pulmonary aspergillosis as the only site of infection. In his series of 98 patients, 41 had acute lymphocytic leukemia, 30 myelogenous, Hodgkin's Disease in 5 and lymphosarcoma in 5. Also in his series of 98 patients, lungs were invaded in 92, gastrointestinal tract in 21, brain in 13, liver and kidney in 12. In our series[5] of 4 patients, 1 had pulmonary tuberculosis, the second carcinoma of lung and 2 patients did not have any evidence of any other pulmonary diseases. The patient with pulmonary tuberculosis had treatment with antituberculous drugs for about 5 years before being re-admitted to hospital with a cavitary lesion in which aspergilloma was found later on surgery.

Pulmonary manifestations of aspergillosis—The most common symptoms are cough, he-

moptysis, chest pain, night sweats, loss of weight, fever, shortness of breath, lethargy, weakness and fatigue. However, some patients with chronic aspergillosis appear in good health, perhaps having slight fever or occasional cough. Aspergillosis may present itself as acute bronchitis, allergic broncho-pulmonary aspergillosis or intracavitary fungus ball. In series of Young[4] et al. pulmonary manifestations were present in 92 patients; necrotizing broncho-pneumonia in 30, hemorrhagic pulmonary infarction in 29, miliary micro-abscesses 9, lung abscess 6, aspergillary bronchitis 8 and aspergilloma in 1 case only.

Allergic broncho-pulmonary aspergillosis is characterized by recurrent fever, cough, wheezing, purulent sputum containing Aspergillus mycelial plugs, Charcot-Leyden crystals, Curschman's spirals and eosinophils.

Aspergillary bronchitis is characterized by bronchial casts containing mucus myecelia. The fungus is usually not invasive in this form and bronchial mycosa is usually preserved but superficial erosion may occur and progress to ulceration. The tracheo-bronchial tree may contain thick, gelatinous reddish brown mucoid material. The patient has respiratory symptoms as dyspnea, wheezing, cough and spitting up of blood.

The fungus seems to have a special predilection for pulmonary cavities such as occur in pulmonary tuberculosis, bronchiectasis, chronic lung abscess, emphysematous cysts and bullae in which it multiplies to form aspergilloma, mycetoma or fungus wall. The aspergilloma is a large ball-like mass of Aspergillus mycelia lying within cavity. This mass may be lying freely or may be attached to cavity wall. Mycetoma develops as frequently in relatively new cavities as in those of long duration. However, the determining factor was probably the state of activity of tuberculosis since fungus ball rarely develops in active tuberculous cavity. A few mycetomata disappear spontaneously or during pyogenic infection of the cavity. The British Tuberculosis Association[6] collected information from 55 chest clinics on 544 patients having persistent cavities, at least 2½ cms in diameter, in whom sputum was positive for tubercle bacilli but were negative for the previous year, so-called open healed tuberculous cavities. Chest films of 59 patients in this series showed an intracavitary fungus ball.

Patient with necrotizing broncho-pneumonia had dyspnea, fever, shortness of breath, cough, pleuritic pain, hemoptysis and signs of broncho-pneumonia in chest.

Patients with hemorrhagic pulmonary infarction procedures symptoms which could be clinically indistinguishable from pulmonary embolism, can produce syndrome characterized by sudden onset of pleuritic pain, pulmonary infiltrate which may, or may not, be transient. There is also a disseminated form of aspergillosis which is not uncommon due to the spread of Aspergillus fumigatus by hematogenous route.

In series of 98 patients with pulmonary aspergillosis of Young[4] et al. 34 had evidence of disseminated aspergillosis at autopsy. In 32 patients lungs were involved and only 2 patients had disseminated form without pulmonary involvement. The involvement of intestinal tract was found in 16 patients and brain in 15, followed by kidney, liver and esophagus. All patients with disseminated disease had underlying disease as leukemia, lymphoma, carcinoma. Also all but one patient received corticosteroid therapy, most received cytoxic drugs. Infection of pleural space with Aspergillus fumigatus occurs also in patients with empyema, broncho-pleural fistula and post-pneumonectomy space.

Radiological findings:

According to Greer[2], 83 per cent of findings of aspergillosis were present in upper lobes and occurs frequently in right upper lobe. It may present itself as cavitation, broncho-pneumonia, pneumonitis, nodular density, linear infiltration with or without enlargement of mediastinal glands. Chest film shows aspergilloma as a round, hemogenous density occupying part of cavity and is surrounded by a crescent of air. This lesion is most common in upper lobes and is not pathognomonic for aspergillosis. A similar lesion has been described—hematomas occupying cavities in echinococcus cysts.

Laboratory findings:

There are no definite laboratory findings; presence of Aspergillus in sputum is not diagnostic as it is often found as a contaminent. The cultures of bronchial, pleural aspirations and gastric washings are more reliable than cultures of sputa. However, repeated isolation from sputum or observation of hyphae on potassium hydroxide preparation would greatly suggest aspergillosis. Skin tests are frequently carried out but are not specific. Diagnosis may be supported on detection of precipitating antibodies in serum. J. L. Longbottom[7] et al. found

positive reaction in 57 of 58 patients with an aspergilloma, in 56 against Aspergillus fumigatus, and in one Aspergillus nidulans. When pulmonary aspergilloma was resected precipitin test became weaker but was rarely negative. A positive precipitin test was found when aspergilloma existed and was important in diagnosis since fungus has been difficult to isolate from sputum of these patients.

Diagnosis:

Diagnosis is rather difficult as pulmonary aspergillosis may mimic any form of pulmonary disease, as tuberculosis, other fungus diseases, malignancy and acute bronchitis. The finding of acid fast bacilli does not exclude aspergillosis, neither does finding of Aspergillus in sputum prove aspergillosis. History, clinical manifestations, course, laboratory data may help in diagnosis. In diagnosis the fact that secondary aspergillosis occurs very often as a complication in patients with chronic disease treated with antibiotics, steroids or immuno-suppressive drugs may lead to early diagnosis. The diagnosis may be obtained by lung biopsy.

Treatment:

A — Medical — There is no specific drug for treatment of aspergillosis but various drugs have been tried, however, most commonly used is 2-hydroxystilbamidine amphotericin B and nystatin. Young[4] et al. treated 14 patients with intravenous amphotericin B with no definite response to treatment. In our series of 4 patients, one patient has been treated successfully with amphotericin B. Infection of the pleura with Aspergillus fumigatus occurs mostly in established cases of pleural empyema, bronchopleural fistula, in post-pneumonectomy spaces. Author[5], in 1956, described 2 cases of infection of post-pneumonectomy space with Aspergillus fumigatus which has been treated successfully with local installation of solution of nystatin. Diagnosis of fungus infection of the pleura can be easily established by presence of brown clumps containing fungal hyphae in pleural pus or abundant growth of Aspergillus fumigatus on culture. Pawel Krakowka[8] et al. described 10 patients with pleural empyema and bronchopleural fistula who later developed infection by Aspergillus fumigatus. The treatment of this pleural aspergillosis was by local installation of nystatin or amphotericin B was effective in 6 out of 7 cases in which this therapy was used.

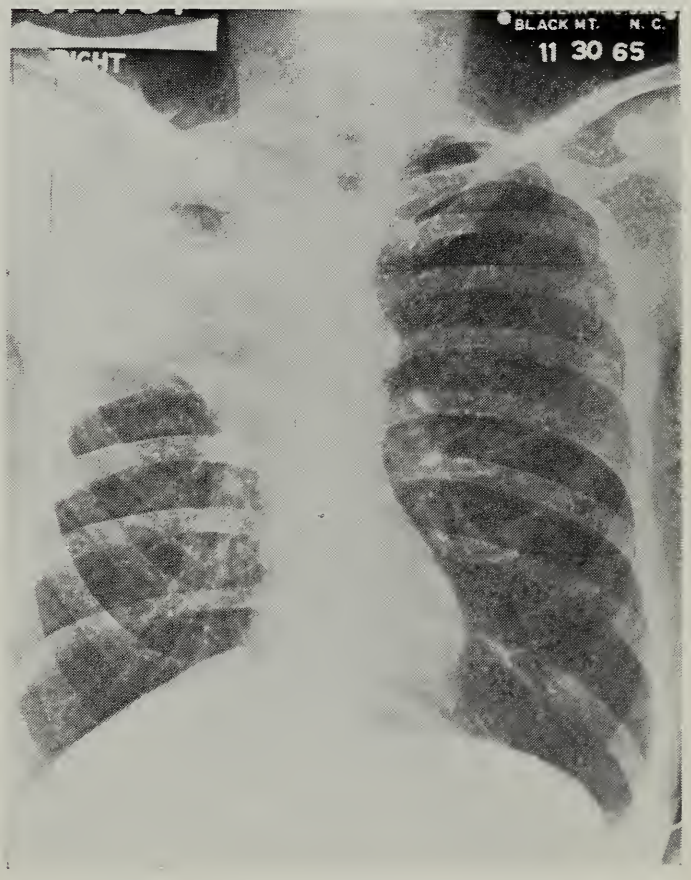
B — Surgical — Surgical treatment in selected patients as segmental resection or lobectomy should also be considered, especially in patients with recurrent and severe hemoptysis.

Case number 1.

This 47 year old white male was admitted to hospital in November 1965. On admission he complained of productive cough, loss of appetite and weight. Physical examination revealed bilateral expiratory wheezing in both lungs, no adenopathy, otherwise was not remarkable.

Pertinent laboratory findings: Several smears and cultures of sputa were negative for acid fast organisms but cultures revealed presence of Aspergillus fumigatus. Bronchial washings reported as Class 2 cytology and Aspergillus fumigatus was present on culture. Chest X-ray showed atelectatic and cavitated right upper lobe (Figure 1).

Figure 1



Chest X-ray 11.30.65 shows atelectatic and cavitated right upper lobe.

Treatment: Patient had a thoracotomy and a poorly differentiated carcinoma involving right upper lobe and aspergillosis was found.

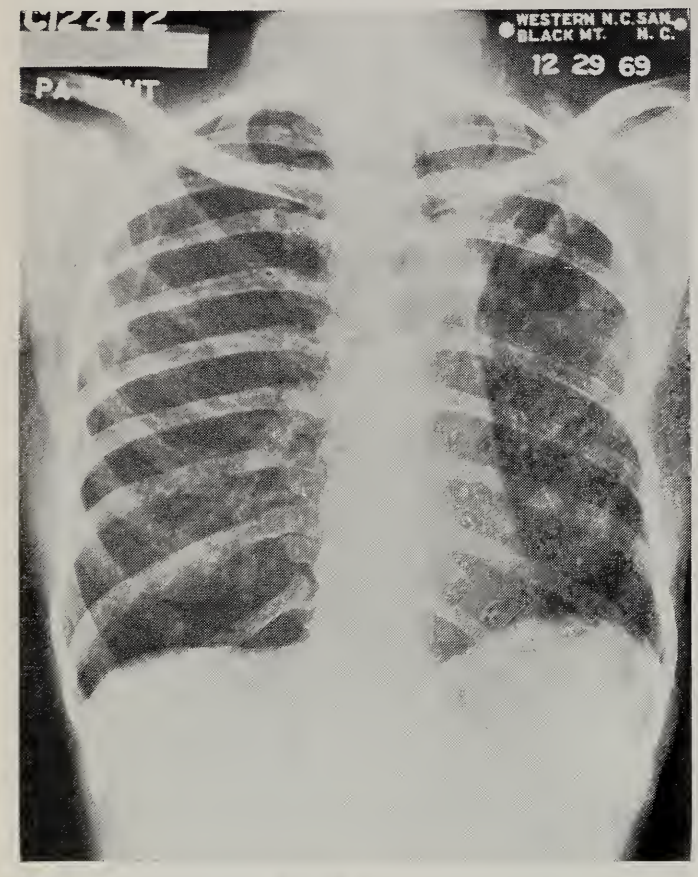
Case number 2.

This 35 year old non-white female has been treated since 1966 for pulmonary tuberculosis and had left upper lobectomy in 1967. She was re-admitted to hospital on 7.24.70 because of

X-ray findings of a recurrent cavity on the left side.

Pertinent laboratory findings: Chest X-ray showed a cavitary lesion in left upper lobe (Figure 2). Planigrams 7 cm showed a fungus ball or blood clot.

Figure 2



Chest X-ray 12.29.69 shows a cavitary lesion in left upper lobe.

Treatment: A left pneumonectomy was performed and resected specimen showed a fungus ball, aspergilloma, in cavity.

Case number 3.

This 56 year old white male was admitted to hospital in March 1966. He complained of shortness of breath and a productive cough which has been getting worse for last 5 years; no fever or chest pain.

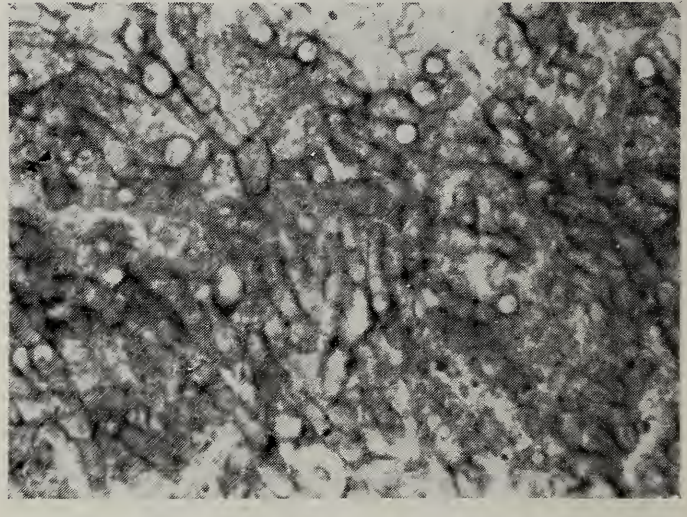
Pertinent laboratory findings: Several sputa and bronchial washings negative for fungus and acid fast bacilli. Chest X-ray showed cavitated lesion in left upper part with nodular densities throughout right lung (Figure 3).

Treatment: A left upper lobectomy was performed and a cavity containing aspergillosis was found with no evidence of either malignancy or other pulmonary diseases. Photomicrograph showed collection of branching hyphae of Aspergillus fumigatus — stain hemat. and eosin. magnification 400 (Figure 4).

Figure 3

Chest X-ray 3.16.66 shows cavitated lesion in left upper part with nodular densities throughout right lung.

Figure 4



Photomicrograph shows collection of branching hyphae of Aspergillus fumigatus — stain hemat. and eosin. magnification 400.

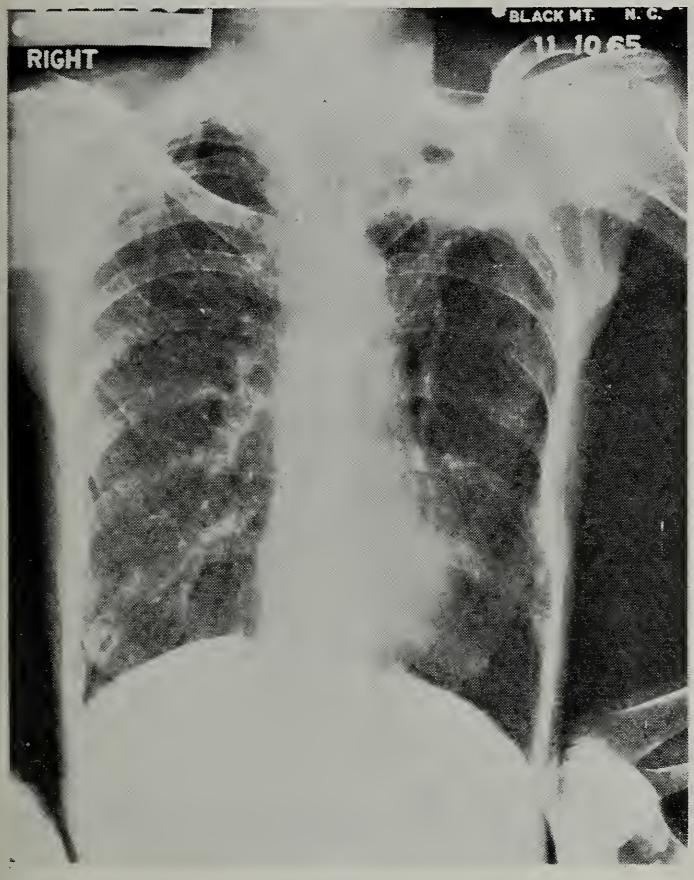
Case number 4.

This 64 year old white female was admitted to hospital in October 1965. She had always been in good health until about 5 months ago when she developed hemoptysis. She had a per-

sistent productive cough, general weakness and loss of weight.

Pertinent laboratory findings: Tuberculin skin test negative. Sputa negative for acid fast bacilli but repeated sputa showed Aspergillus fumigatus on direct smears and cultures. Chest X-ray showed an atelectatic left upper lobe and there were nodular densities in right lung (Figure 5).

Figure 5



Chest X-ray 11.10.65 shows an atelectatic left upper lobe and there were nodular densities in right lung.

Treatment: She received amphotericin B, 21 injections, 410 milligrams altogether. She improved and was discharged home but did not return for continuation of treatment.

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UPCOMING DRUG SYMPOSIUM

Over the past decade, the controversy concerning illicit use of narcotics and halucinogens has become a subject about which many medical students and practicing physicians feel uneducated and incompetent. In response to this feeling, the SAMA chapter, together with a Sioux Falls organization, has prepared a two-day educational symposium concerning "street drugs" to be presented in January.

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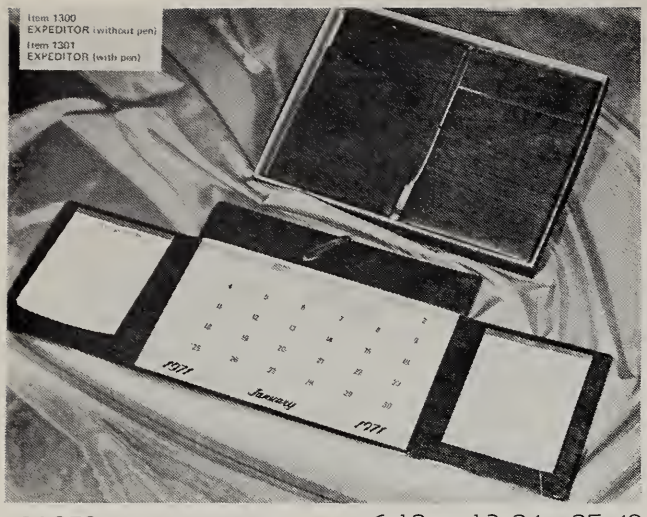

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ANNOUNCEMENT

The University of Miami Law Center and School of Medicine are proud to announce the forthcoming MEDICAL MALPRACTICE, A LEGAL COURSE FOR DOCTORS, which will take place March 1-4, 1972 at the Americana Hotel, Bal Harbour, Florida. The purpose of the seminar is to give to doctors and hospital administrators an in-depth introduction to their legal rights and duties in relation to their patients. Taught completely by lawyers, it will be a non-adversary, factual, legal and practical presentation for the purpose of education.

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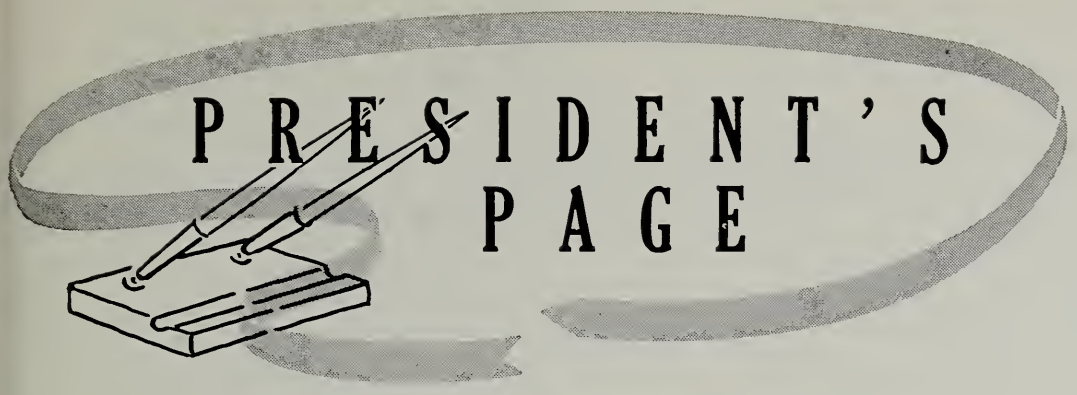

As you read this, the 47th Session of the South Dakota Legislature will be at work. Like its predecessor it is being called upon to deal with issues and problems of direct, and acute, concern to every resident of the state.

As individuals and as members of the medical profession we have a stake in much of the Legislature's actions and deliberations. There has never been a time when medicine was so completely on the legislative firing line, when so many decisions were being made which affect the way we live and practice. It is in our own direct interest that we keep abreast of legislative developments and make our opinions and wishes known to the men and women who represent us at Pierre. We must express ourselves if we expect to have any influence at all on legislation concerning us.

We are and have been most competently represented at Pierre by our association's executive secretary, Dick Erickson, assisted by Bob Johnson. They know their way around the legislative halls, are intimately familiar with the backstage ins-and-outs of legislating, and have the broad acquaintance and many contacts effective lobbying demands. Dick has been instrumental session after session in promoting legislation beneficial to our profession and in sidetracking proposals which were not in our best interests. Our association owes him an enthusiastic debt of thanks.

There are times, however, when I am sure he will welcome all the support we can give him . . . by letter, telephone call and our presence as the occasion may require. I would urge you to respond and to use your influence as may be indicated. Whatever happens, it should not be because we hid our light under the proverbial bushel.

More than any other branch of government, the Legislature is the voice of the people. It is here that we can wield the most direct and powerful influence for the good of our state, our fellow man and our profession.

Let's not let the opportunity pass by unused and wasted. Let's not miss this chance to help shape our future. Let's, in other words, be good citizens.

G. Robert Bartron, M.D.

OUTPATIENT VISITS CONTINUE

For every patient admitted to a hospital in 1970, there were nearly six outpatient visits, the American Hospital Association reports. Ambulatory care continues to be the most rapidly expanding service. The 7,123 AHA-registered hospitals reported a total of 181.4 million outpatient visits last year, an increase of more than 11 percent over 1969. Americans not only made more visits to hospital emergency rooms and outpatient facilities, but they also increased utilization of physicians' offices, outpatient clinics, neighborhood health centers, surgicenters, and other types of ambulatory care facilities.

PRESENT U.S. HEALTH SYSTEM BASICALLY SOUND

The entire health care industry doesn't have to be nationalized or revolutionalized to provide increased access to it, according to John S. Zapp, DDS, deputy assistant secretary for legislation in the Department of Health, Education and Welfare. Speaking to the American College of Dentists recently, Dr. Zapp said the administration believes that increased access to health care can be achieved by building on the strengths of the existing system. He said the administration believes that our health care and health insurance systems are basically sound, but the Nixon Administration's legislative proposals would improve the present system, increase health manpower, and expand health insurance through a partnership between the federal government and the private sector.

GROUP MDs SEE MORE PATIENTS

The typical group physician sees 20 percent more patients than does the solo practitioner, including nearly twice as many in the hospital setting, according to REFERENCE DATA ON THE PROFILE OF MEDICAL PRACTICE, published by the American Medical Association. Only the doctor in a two-man partnership sees more patients. The figures are the result of 3,817 observations made by AMA surveyors in 1969 and published in the 122-page booklet compiled by the AMA's Center for Health Services Research and Development. The average clinic group physician charges more for an initial office visit than do doctors in solo, partnership or informal association practice, but his fee is lower for follow-up and hospital visits.

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ACTIONS: *Microbiology:* Phenoxymethyl penicillin exerts high *in vitro* activity against staphylococci (except penicillinase-producing strains), streptococci (groups A, C, G, H, L, and M) and pneumococci. Other organisms sensitive to phenoxymethyl penicillin are *Corynebacterium diphtheriae, Bacillus anthracis, Clostridia, Actinomyces bovis, Streptobacillus moniliformis, Listeria monocytogenes,* Leptospira, and *Neisseria gonorrhoeae. Treponema pallidum* is extremely sensitive. *Pharmacology:* Phenoxymethyl penicillin is more resistant to inactivation by gastric acid than penicillin G. It may be given with meals and average blood levels are two to five times higher than the levels following the same dose of oral penicillin G. Once absorbed, phenoxymethyl penicillin is about 80% bound to serum protein. Tissue levels are highest in the kidneys, with lesser amounts in the liver, skin, and intestines and small amounts in all other body tissues and cerebrospinal fluid. Only about 25% of the dose given is absorbed. In neonates, young infants, and individuals with impaired kidney function, excretion is considerably delayed.

INDICATIONS: Phenoxymethyl penicillin is indicated in the treatment of mild to moderately severe infections caused by penicillin G-sensitive microorganisms that are sensitive to the low serum levels common to this particular dosage form. Therapy should be guided by bacteriological studies (including sensitivity tests) and by clinical response. Culture and sensitivity testing are especially important in suspected staphylococcal infections because increased resistance has been reported. Phenoxymethyl penicillin is not active against penicillinase-producing bacteria.

Note: Severe pneumonia, empyema, bacteremia, pericarditis, meningitis, and arthritis should not be treated with phenoxymethyl penicillin during the acute stage.

Indicated surgical procedures should be performed.

Medical conditions in which oral penicillin therapy is indicated as prophylaxis: For the prevention of recurrence following rheumatic fever and/or chorea. To prevent bacterial endocarditis in patients with congenital and/or rheumatic heart lesions who are to undergo dental procedures or minor upper respiratory tract surgery or instrumentation.

Note: Oral penicillin should not be used as adjunctive prophylaxis for genitourinary instrumentation or surgery, lower intestinal tract surgery, sigmoidoscopy and childbirth.

CONTRAINDICATION: A previous hypersensitivity reaction to any penicillin.

WARNINGS: Serious and occasionally fatal hypersensitivity (anaphylactoid) reactions have been reported in patients on penicillin therapy. While more frequent following parenteral therapy, anaphylaxis has occurred in patients on oral penicillins. These reactions are more apt to occur in individuals with a history of sensitivity to multiple allergens.

Some individuals with a history of penicillin hypersensitivity reactions have experienced severe hypersensitivity reactions from a cephalosporin. Before therapy with a penicillin, careful inquiry should be made concerning previous hypersensitivity reactions to penicillins, cephalosporins, and other allergens. If an allergic reaction occurs, the drug should be discontinued and the patient treated with the usual agents, e.g., pressor amines, antihistamines and corticosteroids.

PRECAUTIONS: Penicillin should be used with caution in individuals with histories of significant allergies and/or asthma.

The oral route of administration should not be relied on in patients with severe illness, or with nausea, vomiting, gastric dilatation, cardiospasm, or intestinal hypermotility.

Occasional patients will not absorb therapeutic amounts of orally administered penicillin.

In streptococcal infections, therapy must be sufficient to eliminate the organism (10 days minimum); otherwise the sequelae of streptococcal disease may occur. Cultures should be taken following completion of treatment to determine whether streptococci have been eradicated.

Prolonged use of antibiotics may promote the overgrowth of nonsusceptible organisms, including fungi. Should superinfection occur, appropriate measures should be taken.

ADVERSE REACTIONS: While the incidence of reactions to oral penicillins is much less than with parenteral therapy, it should be remembered that all degrees of hypersensitivity, including fatal anaphylaxis, have been reported with oral penicillin.

The most common reactions to oral penicillin are nausea, vomiting, epigastric distress, diarrhea, and black hairy tongue. The hypersensitivity reactions reported are skin eruptions (maculopapular to exfoliative dermatitis), urticaria and other serum sickness reactions, laryngeal edema, and anaphylaxis. Fever and eosinophilia may frequently be the only reaction observed. Hemolytic anemia, leucopenia, thrombocytopenia, neuropathy, and nephropathy are infrequent reactions and are usually associated with high doses of parenteral penicillin.

HOW SUPPLIED: Pfizerpen VK (potassium phenoxymethyl penicillin) for Oral Solution. Each 5 ml. of reconstituted solution contains potassium phenoxymethyl penicillin equivalent to 125 mg. (200,000 units) or 250 mg. (400,000 units) of phenoxymethyl penicillin.

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A CALL TO ACTION

I think the time has come for all of us to give serious consideration to some of the problems which confront our profession, both as citizens and as members of a calling which for some reason seems to be the target of a majority of bureaucrats and sociological do-gooders; most of them busily spinning webs from Washington with which they hope to snare and control American medicine. I have practiced, as have many of you, for nearly thirty years. I cannot recall a time when our profession was under such constant threat of usurpation by those whose intentions may be worthy but whose tactics are most questionable and who attempt to drive ahead while giving little if any thought to the horrendous load their schemes will throw upon the shoulders of the man who inevitably pays the freight—you and me and every other American taxpayer.

I refer, in part, of course, to the ill-starred compulsory national health insurance proposal —or "plot", if you prefer—which has been put before Congress and the American people as an inclusive blanket beneath which the patient, regardless of his circumstances, may huddle all but fully protected from the costs of medical care. In my opinion, there is a lullaby effect in the blandishments with which this program is being promoted which is as dangerous as the program itself.

Its imminence, and the seriousness with which its threat is being taken, were emphasized repeatedly at the AMA's 1971 convention in Atlantic City. Those of you who attended recall that compulsory national health insurance was a principal topic of conversation both on and off the convention floor. It was President Nixon himself, speaking to the House of Delegates, who pointed out that if enacted, it would cost the federal government—which is to say every taxpayer—more than $77 billion dollars, driving the health share of the federal budget to nearly 25 per cent. The President has his own proposals which are by no means generally favored; but the principal difference between his plan and the so-called Sen. Edward Kennedy legislation — the compulsory insurance proposal — is that while Nixon's would raise the cost of federal programs to the average American household from the present $405 a year to $466, the Kennedy plan would triple it to $1,271.

The question, naturally, is . . . can we pay for it? I think not and I think most people will agree. The thought of having one's medical expenses almost automatically taken care of at the expense mostly of just some government-type paper work is indeed disconcerting. The trouble here is that too many people are so eager for another bite of this pie in the sky they forget that somewhere along the line the baker has got to be paid—and the payor is Mr. John Citizen.

This can happen while, as you know and the President pointed out, the quality of medicine put before the patient is very likely to deteriorate, hamstrung and hemmed in as practice will be by federal bureaucratic control and regulation. We've had an excellent sampling of this already in the manner in which Medicare with its endless rules and paper work has all but strangled clinical and hospital business procedures. If you want to hear some heartfelt profanity over bureaucratic intervention in private enterprise, listen to any hospital administrator.

I have long been an advocate of the physician's participation in public affairs because I am convinced that that is where much of the future of our profession is going to be decided. More specifically, I feel our destiny is inextricably tied in with politics and will become more so as time goes on. What it means simply is that we have got to get out and get concerned and get our feet good and wet in the arenas

where our fate is being decided—in the legislature, in state government and, of course, in Congress.

The reason is obvious. I like the way President Nixon put it:

"I have heard a doctor say on occasion . . . 'I am only interested in my profession, I am not interested in politics.' Let me tell you something. He better get interested in politics or he won't have any profession to be interested in."

I think we all agree. If we don't get out and defend ourselves, we can hardly expect to be defended.

Many of you, I'm sure, will recall the challenge the President gave American medicine in the farflung effort to meet the very real danger of widespread drug abuse. I think it said a lot for our organization, national and state, that the President's remarks were followed almost instantly by public acceptance of the challenge, placing us as doctors in the forefront of the fight. Full-page advertisements were published the very next day in major metropolitan newspapers reciting the AMA's acceptance of the challenge.

The President has called upon us to take the leading role in the broad and essential field of drug education. We are to be bellwethers in the job . . . and it will often be a discouraging one . . . of pointing out just how utterly ruinous drug usage can be.

I think it somewhat significant that Nixon puts at least a bit of the blame on us as physicians for the creation of a so-called "drug culture". He thinks, and I must admit that he isn't the only one, that we have played at least some role in making addictive drugs too easy to get and that easy procurement has become rather synonymous—especially in the youthful mind—with social acceptance. There is some logic here which I do not think we can ignore.

The plain and regrettable fact is that one-third of all Americans between the ages of 18 and 74 used psychotropic drugs last year. If you doubt we have a problem, think those figures over a bit. And it must be acknowledged too, these users were by no means all ghetto and low-income groups, poor, uneducated, to whom drugs are more a relief and release from an unhappy or unbearable lot. Our American "upper crust" is contributing just as many victims to the drug habit. If you doubt it, check with almost any law enforcement agency. We have the problem right here in South Dakota.

May I quote the President once more?

"The best way to end drug abuse is to prevent it and America's doctors are the indispensable frontline soldiers for success in this all-important battle. I look to the medical profession for leadership in this field of education in drug abuse."

"Rather than preach moralistically about the sinfulness of drugs, you can teach realistically about their physical and psychological impact, and you can bring tremendous credibility to this undertaking. We ask for a part of your time every day in this field if it can be effectively used."

There is a rapidly growing realization among doctors everywhere that medicine tends to get caught with its public relations down, that the average person views the average doctor as someone with a bulging wallet, a big car and the taste and means for lavish living—all attained at the patient's expense. Like it or not, this is how many people look at us. It's not a good image and it's one we should go to any lengths to correct.

I think one effective corrective endeavor will be to take up this drug education campaign, as the President asked us to do, and get on with a continuing saturation drive to point out and point up the grave dangers inherent in the addictive use of drugs of any kind.

I think that as physicians we do have a built-in credibility working in our favor here and—if I may appear a bit self-serving for a moment—I think we can do ourselves some good in the public relations sense if we go at this problem as we alone can do.

The youngster teetering between experimentation and addiction can often be helped by sane, matter-of-fact advice and counseling by members of a profession who, better than anyone else, know about drugs and what they can do when used to excess and beyond medical control.

I think, in other words, we can strike a double blow here—for ourselves as a publicly beleaguered profession, and for society as it battles a truly grave crisis-problem, one which is daily growing more critical.

In this connection, incidentally, you have already been advised of one resolution adopted by the delegates to the convention, one urging all physicians to limit their use of amphetamines and other stimulant drugs for specific, well-recognized medical indications.

Overall, we are being asked to exercise greater responsibility in the use of drugs for thera-

peutic purposes. As a practical matter, drug usage frequently starts in the doctor's office or at his direction; it follows naturally that a considerable sense of restraint and judgment is called for, taking into consideration not only the patient's physical condition but the accompanying mental, emotional and psychic makeup as we are able to discern it.

As physicians, we are called upon to intervene on occasion in instances where morals are involved—or perhaps, moral indiscretions. The new moral structure and social code which is developing all around us is doing so at the expense of some cherished and traditional rules of the road, so to speak. The House of Delegates took note of this when, in a resolution it asserted:

"The teenage girl whose sexual behavior exposes her to possible conception (should) have access to medical consultation and the most effective contraceptive advice and methods consistent with her physical and emotional needs. The physician so consulted should be free to prescribe or withhold contraceptive advice in accordance with his best medical judgment in the best interests of his patient."

An accompanying resolution urges our medical societies and public information media to join in a program of disseminating more intensively and more imaginatively all available data on venereal disease and to emphasize health education in schools. Of the latter, we are urged to establish active liaison through lectures and other means to discuss personal hygiene, effects of tobacco and drugs, the problem of medical quackery, and the role of physicians in maintaining good health.

These are big orders. I am not so naive, and I am certain you aren't either, as to believe that this is all going to be carried out in toto. But as your state association president, I would strongly urge you to consider at least part of the program and attempt to invoke whatever aspects you feel are most worthwhile. Each, as you can see, has strong public relations elements, characteristics which will improve the image of medicine before the public. Again . . . it seems to me to be important that we do whatever we can to polish that image.

I might also mention peer review which was another subject given considerable attention at the convention, but this I have covered in another article appearing on the President's Page.

Here in South Dakota, we continue to face the problem of the medical manpower shortage. A great deal has been said and written about the relatively new concept of the physician's assistant. I think that eventually this will help but it will be some time coming . . . some time, indeed . . . before it will have measurable effect out here. Meanwhile, we are attempting to recruit bright, promising youngsters to begin medical training and we are doing our utmost to help our South Dakota Medical School maintain its high and commendable stature as a preliminary training ground. As you know, its reputation among its contemporaries and especially in the institutions to which it sends its graduates is bright. Our objective is to do what we can to insure that more and more of these young men bring their M.D.'s back to South Dakota to practice.

So, too, in the paramedical fields where an equivalent shortage exists, and in the medical specialities where the South Dakota need is also acute.

Our rural areas, as you know, are slowly being drained of their people. But many remain and will continue to remain, and to them health care is a vital and growing problem. Here, too, we are addressing our energies and here, too, we need everyone's help. It is a professional problem as much as it is a legislative one. It is a field in which I am hopeful we can show some tangible progress within the very near future.

We are, in short, members of a profession in flux, in change, faced with problems which our predecessors never knew or anticipated. I feel quite strongly that the day of confining oneself to his own practice, his own bailiwick, with only indifferent heed, if that, paid to the world about him is long since gone. Our fundamental interest, of course, must remain as it has always been: service to mankind, quality medicine as it has grown up through our system of private practice.

But there is a vast world beyond this and more and more we are being thrust out into it, both as physicians and as ordinary citizens. Our profession can no longer stand apart nor can we, as the individuals who make it up, confine ourselves to our own world—attractive as it is. We have got to get out, speak our piece, and stand up to defend the traditions and concepts which have—trite though I may be here—made American medicine the best in the world.

We can keep it the best, but we'll have to work at it.

G. Robert Bartron, M.D.
President SDSMA

This is your MEDICAL ASSOCIATION

C. B. McVay, M.D., Yankton, is one of 189 governors of the American College of Surgeons. Governors act as communication links between the 32,000 fellows of the College, 79 local chapters, specialty societies, Regents and the headquarters staff.

* * *

Fifteen physicians attended the Mitchell District Medical Society meeting held on November 3 and heard **G. Robert Bartron, M.D.,** State President, speak on the future of medical education in South Dakota.

* * *

D. L. Scheller, M.D., Arlington, was honored recently for his 25 years of service to Lake Preston and Arlington. Included on the program were **Robert Van Demark, M.D.,** Sioux Falls, and former Lake Preston physicians, **C. S. Roberts, M.D.** now of Brookings, and **R. K. Arbon, M.D.** of Idaho Falls.

* * *

The Central South Dakota Area Wide Comprehensive Health Planning Council elected **Roscoe Dean, M.D.,** Wessington Springs, as its president. Serving on the Board of Trustees is **B. T. Lenz, M.D.,** Huron.

* * *

R. C. Jahraus, M.D., Pierre, served as chairman for the Pierre District Medical Society's Diabetes Detection Program.

* * *

The South Dakota Medical Assistants held a workshop at Huron at which **Paul Hohm, M.D.** extended the welcome and **E. S. S. Joseph, M.D.** spoke on the "Practice of Medicine in Malaysia."

* * *

Geriatric Pharmaceutical Corporation has made available prints of a 16 minute, 16 millimeter, color and sound film entitled "Decision." The film was prepared in cooperation with the Self Employment Group of APTA and selected pharmaceutical manufacturers, and was filmed at the University of California Department of Physical Medicine and Rehabilitation. The film is tailored to students at the high school or early college level, and portrays the background and activities of the physical therapist. It follows the activity of the therapist through his professional training and practice, in the classroom, in the hospital, in the office and in the home. The film is strictly non-commercial, no products or devices are advertised or recommended. "Decision" is of invaluable assistance to R.P.T.'s who are called upon by civic and other groups to talk about their work, since its comprehensive explanations cover virtually every facet of the profession. It can simplify and shorten the oral explanation by the R.P.T. and has been found to generate a lively "question and answer" period after its viewing. The film is especially valuable for administrators and educators, for viewing by students who might be interested in pursuing a career in Physical Therapy. Arrangements for booking on loan can be made by writing to Mr. Gustave Bardfeld, Director of Clinical Research, Geriatric Pharmaceutical Corporation, 397 Jericho Turnpike, Floral Park, N.Y. 11001.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

* * *

MECO PLANS DRIVE FOR EXPANSION

MECO (Medical Education and Community Orientation) is an extramural educational program for pre-clinical medical students. It is conducted for a ten week period during the summer. The student is paid a weekly stipend to provide for living expenses.

The program is designed to provide an opportunity for

medical students to observe and work under the direct supervision of physicians in hospitals and clinics throughout South Dakota. In most instances the participating student will have completed only one year of medical school, so the program provides him with his initial clinical experience.

Immediate goals of MECO include introduction of the student to basic concepts of patient oriented health care, to create an awareness in the student about the changing nature and patterns of health care delivery in South Dakota communities and to help the student evaluate his career goals and to assist him in planning his further medical education. It is anticipated that many students will work in small rural communities and hopefully they will obtain an appreciation of medicine as practiced in rural South Dakota. An expressed long-term goal of MECO is to affect the future distribution of health manpower in South Dakota.

Last year, thirteen students participated in MECO programs in eight communities during the first year of MECO in South Dakota. It is hoped that this number can be substantially increased for the summer of 1972.

It is anticipated that the student will rotate through all areas of the hospital and spend time with the physician in the clinic of the community concerned. The program possesses sufficient feasibility that the student may obtain valuable training and experience in small community hospitals and clinics as well as in multiservice hospitals in larger South Dakota cities.

Last year MECO projects were established in Watertown, Webster, Dell Rapids, Madison, Mobridge, Yankton, Huron and Aberdeen. MECO at USD is grateful for the support of physicians and hospital administrators for their cooperation in last year's projects.

During the next several weeks, medical students from the USD School of Medicine will be contacting physicians with the purpose of establishing new MECO projects. They will have details outlining the process of initiating a MECO program.

For more information, please write or call John Culle, MECO State Project Director, USD School of Medicine, Vermillion.

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CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

RICHARD F. NICE, M.D.*
Orthopedic Surgeon-Discusser

JOHN F. BARLOW, M.D., FCAP**
Pathologist-Editor

NINETEEN YEAR-OLD CAUCASIAN MALE WITH CONFUSION AFTER MULTIPLE FRACTURES

CASE NO. A70-110

This 19-year old Caucasian male was involved in an automobile accident on Interstate 29 south of Beresford, South Dakota. He was the driver. A passenger in the car was dead on arrival. The significant history included allergy to penicillin and a previous surgical excision of a benign osteoma of the right humerus. There was no other significant past or present history. Initial physical examination revealed a temperature of 99 degrees F., blood pressure 110 systolic 70 diastolic. Injuries included: 1) fracture of the right femur, 2) dislocation of the left femur, 3) penetrating compound fracture of the right patella with avulsion of the skin of the right knee, 4) an avulsion with skin flap on the dorsal aspect of the left wrist, 5) fracture of the bridge of the nose, 6) facial and scalp lacerations, and 7) multiple contusions and abrasions. The patient was conscious and responsive. Examination of the eyes, ears, nose, and throat were negative except for some epistaxis about the nasal tract. Movement of the neck was possible without pain. There was normal expansion of the thorax with good breath sounds bilaterally. The heart was of normal size. The rhythm was normal and there were no murmurs. There were no organs, masses, spasm or tenderness felt on abdominal examination. Rectal examination was negative. Neurologic examination showed equal and bilateral reflexes. The plantar reflexes were flexor.

Clinical pathology data: Admission urinalysis-slightly cloudy, specific gravity 1.035, pH 5.0, 1+ proteinuria, Negative for glucose, ketone bodies and bile. There was a small amount of hemoglobin. Microscopic showed 10-15 red cells and a moderate amount of mucous. Admission hgb. was 16.4 gm%, red count 5.37 million/mm^3, hct. 47 Vol.%, mean corpuscular hemoglobin 30 micro-micrograms, mean corpuscular volume 88 cubic micra, mean corpuscular hemoglobin concentration 35%. Total leukocyte count 20,500 with 68% segmented neutrophils, 3% neutrophilic bands, and 9% normal lymphocytes. The red cells were normochronic, normocytic and the platelets were adequate on smear. A platelet count was 185,000/mm^3.

The patient was taken to the operating room where a closed reduction of the left hip, cleansing and debridement of the left knee wound and insertion of a Kirschner wire for skeletal traction of the right femur was performed. A left wrist abrasion was also debrided and sutured. Culture from the skin of the scalp revealed staphylococcus epidermidis. The patient received 2 units of blood. His hemoglobin fluctuated but progressively dropped to 10.1 gm% three days after admission. A fibrinogen was 990 mg% three days after admission. Commencing the day after admission the patient showed signs of increasing restlessness and confusion with fluctuating levels of consciousness. He developed petechiae on the anterior chest, tachypnea and cyanosis. At one point he became totally unresponsive but recovered remaining confused and restless. His temperature varied between 101 and 103.6. Respiratory rate went up to 40/min. and the pulse rate between 92-120/min. Because of increasing respiratory distress, the patient underwent a tracheostomy on the third hospital day. During this, he developed cardiac arrest and had to be resusci-

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tated. The patient developed a drop in pulse and absent blood pressure. Bubbling frothy material oozed from the mouth and he had rales bilaterally. The pupils became fixed and dilated and further resuscitation was not successful. He died on the third hospital day.

Significant laboratory data during his time of fluctuating consciousness and fever revealed initial electrolytes, pH 7.48, PCO_2 39 mm/mercury, CO_2 content 29 meq/L, sodium 132 meq/L, potassium 4.1 meq/L, chloride 96 meq/L. Lipase on two occasions showed no units. Calcium was 7.4 mg% (normal 8.3-10.3 mg%). There were no fat bodies seen in the urine. Before tracheostomy, arterial gas study showed pH 7.43, PCO_2 52 mm of mercury, CO_2 content 33 meq/L, PO_2 31.0$_2$ mm of mercury saturation 64%, VD/VT=1.5. After tracheostomy pH 7.34, PCO_2 39 mm of mercury, CO_2 content 20 meq/L, PO_2 78 mm of mercury and O_2 saturation 94%.

Electrolytes on day of death pH 7.36, PCO_2 40 meq/L. sodium 134 meq/L, potassium 4.2 meq/L, and chloride 97 meq/L. Arterial blood gases later on the day of death: pH 7.62, PCO_2 27 mm of mercury, CO_2 content 26 meq/L, PO_2 30 mm of mercury, O_2 saturation 73%, sodium 140 meq/L, potassium 3.4 meq/L, and chloride 96 meq/L.

Other laboratory data: Total protein 5.9 gm%, calcium 7.5 gm%, phosphorus 1.9 mg%, cholesterol 130 mg%, glucose 120 mg%, BUN 16 mg%, uric acid 4.2 mg%, creatinine 1.2 mg%, total bilirubin 1.1 mg%, total alkaline phosphatase 48 I.U.; LDH 380 I.U. (normal 80-200 I.U.), SGOT 300 units (normal up to 50 units). Two electrocardiograms revealed sinus tachycardia. X-rays revealed no evidence of skull fracture. Pelvis films showed dislocation of the left femoral head and an oblique fracture of the patella. The lungs on admission were clear but two days after admission showed patchy zones of increased density throughout both lung fields.

DR. NICE: The protocol concerns a 19-year-old white male involved in an automobile accident. Though no information is available on this point, we can probably assume no significant delay in reaching the hospital facility occurred. His history would indicate no apparent previous illness.

His skeletal injuries included right femoral fracture and left femoral dislocation, open fracture of patella, multiple contusions and abrasions, and skin lacerations. We cannot be certain of the severity of all these injuries.

Despite these rather severe injuries, the patient arrived in pretty good condition. He apparently was not in profound shock. At least examination of his chest and abdomen were unremarkable and his neurological examination was not remarkable. Was a chest film obtained on admission?

DR. BARLOW: "Yes, here it is."

DR. NICE: It looks pretty normal.

The patient was taken to the operating room where his skeletal injuries were treated by standard methods-all closed. These should have produced almost no blood loss. The patient received two units of blood. Despite this his hemoglobin dropped to 10.1 gm/100ml within 24 to 36 hours. The patient became restless and confused. He developed petechiae, tachypnea and cyanosis. Because of respiratory distress, the patient underwent tracheostomy during which he had a cardiac arrest. He was resuscitated successfully but his pulse fell and his blood pressure became absent. The patient died with frothy material coming from the mouth and bilateral rales.

In summary, we have a young apparently healthy white male who sustained multiple skeletal injuries in an automobile accident. He became restless and confused and developed a decreasing hemoglobin, petechiae, tachypnea, fever, and cyanosis. He died on the third day after injuries with some form of respiratory distress syndrome.

Delirium tremens, septicemia, drug idiosyncrasy, diabetic coma need not be considered seriously.

The fact that an orthopedic surgeon is called upon to discuss a patient with respiratory problems, should immediately suggest at least one diagnosis—that is, systemic fat embolism. However, there are several other possibilities that should be explored.

Did the patient have an unrecognized head injury? Skull films were reportedly normal, but the patient did have some scalp lacerations and preterminally his sensorium was disturbed. However, cerebral injury is associated, at least terminally, with a slow pulse rate and slow respiratory rate in contrast to the tachycardia and tachypnea displayed by this patient. Also, localizing signs of neurologic deficit are usually present in head injury. None were noted in the protocol.

Was the patient merely over-hydrated and pushed into pulmonary edema? I rather doubt it. The patient was young and healthy, and I would think that it would be rather hard to drown him accidently. He certainly was not overtransfused as evidenced by his falling hemoglobin. Reasonably normal kidneys should have kept him out of trouble from crystalloid solutions. A central venous pressure monitor might have given us some helpful information. I cannot believe his respiratory distress would not have far overshadowed any state of consciousness abnormalities due to iactrogenic overhydration. Overhydration should have induced some hypoproteinemia and hyponatremia. Neither of which occurred in this patient to a marked degree.

Did the patient have an unrecognized chest injury or pulmonary contusion? Pulmonary contusion can be an extremely serious injury with a mortality of 30% or more. The patient can be deceptively asymptomatic initially with normal appearing pulse. The parenchyma on the initial chest x-ray can be normal. The initial alterations may be abnormality in the blood gas pattern with decreased PO_2 and increased PCO_2 and respiratory acidosis. These changes are rapidly followed by dyspnea, tachypnea, cyanosis, and tachycardia. Generally, all of these patients develop copious tracheal and bronchial secretions of mucous and serum, and eventually frank blood. The blood gas changes will often persist and even worsen despite evacuation of pneumothoraces, stabilization of the chest wall, or assisted ventilation. Although the chest film initially shows normal parenchyma, there is frequently evidence of chest wall injury in pulmonary contusion. The lung is a pretty good cushion and exerts a strong, dampening effect on the forces causing the injuries. It requires a very severe blow to produce a significant contusion. Except for young children, there are usually fractures and contusions. Also when pulmonary parenchymal damage does occur from trauma, it is usually more severe on one side of the chest than on the other, unless both sides were equally injured. Again, in trauma to the lungs, usually respiratory distress far overshadows mental confusion in the first few days after injury.

As we progress, entities become harder to define, much less to rule out. Part of this is due to terminology. The lesion we have previously referred to as pulmonary contusion was designated as traumatic wet lung in World War II. At that time this term also encompassed a condition that we saw in Viet Nam, but about which we know very little. In this entity the major trauma may be nonthoracic. In World War I this later entity was called massive pulmonary collapse and was attributed to pneumonia. In World War II, the patients were assumed to have direct pulmonary injury and were diagnosed as traumatic wet lung (as I said above). In Viet Nam this was called DaNang lung or shock lung. The most commonly used term seems to be congestive atelectasis. Perhaps a better term than that would be post traumatic respiratory distress syndrome. Whatever you call it, it is a serious business as the mortality may be as high as 80%. This syndrome usually comes on rapidly. These patients also have cyanosis, tachypnea, and dyspnea. They usually require tracheostomy to control secretions and ventilatory assistance. Symmetric, patchy infiltrates appear on the chest film in one to three days. Decreased PO_2, decreased oxygen saturation, and marked difference between the alveolar and arterial PO_2 are seen. The PCO_2 is normal or low. The pH is often high. These patients seem to have difficulty oxygenating the blood, but the carbon dioxide can easily be excreted. There is a marked decrease in lung compliance. This may explain the respiratory alkalosis with hypocapnia which is very frequent, (as stated above). Additionally, most of these patients have had significant hypotensive episode with severe wounding and have received large amounts of intravenous fluids during their resuscitation. Despite this, they usually have a normal central venous pressure. These patients often die rapidly, often without regaining consciousness from surgery, which has been necessitated by the grave wounds. The lungs at autopsy show a carnaceous appearance and are very heavy. The alveoli are collapsed and the alveolar walls are thickened and edematous. Pulmonary hyalin membranes are often seen and fat emboli are frequently seen. According to Ackroyd, 100% of the patients in whom this syndrome occurred resulted in fatalities. These patients, however, do not develop petechiae and fat emboli are not seen frequently histologically — at least to the extent of that seen in fat embolism.

A patient who sustains skeletal trauma followed by restlessness and disorientation in a period of hours to about several days

and then develops petechiae, coma, and respiratory distress, is a very typical example of the syndrome of severe systemic fat embolism. The state of our knowledge regarding fat embolism is not a great deal better than that of the post traumatic respiratory distress syndrome in spite of the fact that fat embolism was first described 100 years ago. Although it is well known that fat embolism can occur in burns, alcoholism, infections, and nephritis; it is most commonly found in cases of severe skeletal trauma. The syndrome is relatively rare. The actual incidence is not known as minor degrees of the syndrome may be very mild and passed off as "fracture fever" or some other term. It appears to play a significant role in about 2-5% of fractures that terminate fatally and complicate another 10% of these. It respects no age group; even children are not immune. The diagnosis of fat embolism is arrived at by a high degree of suspicion and is based on: 1. Significant skeletal injury, 2. Usually associated hypovolemic shock, 3. Petechial hemorrhages, 4. Dyspnea and tachypnea, 5. Disturbances of consciousness. The history of the patient's initial care is important. Peltier states that every patient he has seen with multiple femoral and tibial fractures who has been transported over 100 miles or more without splinting has developed fat embolism.

The petechial rash when present is most helpful, and even a few petechiae are of diagnostic help. By definition the rash is hemorrhagic and does not blanch on pressure and occurs in crops. The petechiae occur over the anterior chest, along the anterior-axillary line, in the clavicular fossae, and in the flanks. If looked for, they may be seen in the mucosa of the soft palate. One of the most reliable and earliest sites is in the eye grounds. These are called "Purtscher's patches". The petechial rash usually occurs on the second and third day after other symptoms have appeared according to Sevitt. The rash suggests the disseminated nature of the embolism, but only if the biopsy of the petechiae contain fat. Peltier, on the other hand, has been unable to confirm fat in the petechiae with frozen sections. He has found that in his patients the petechiae could be provoked by a tourniquet — Rumpel-Leede test. Peltier has noted that thrombocytopnea usually below 150,000 is very common in these patients. He feels that the platelets coat the fat emboli thus reducing the platelet count.

Other findings can aid in the diagnosis of fat embolism. Lipuria is an early finding in about 50% of the patients occuring usually in the first three days. This is an easy test to perform, but many consider it unreliable. Sevitt states that fat was absent from the urine in most cases and suggests renal needle biopsy.

Lipase elevations are also helpful and anything over 1 unit is significant. However, this actually occurs later, at about 4-5 days, post-injury. Peltier thinks that very high lipase elevations seem to carry a grave prognosis. Peltier, at least in most of his writings, seems to support the mechanical theory of fat embolism. He believes that the fat embolism is a parenchymatous embolism arising from fat in bone marrow at the site of local injury. Embolization to the lungs from the injured site then occurs. The fat is neutral fat, but can be split into fatty-acids by lipase, which is an enzyme present in the lung and other tissue. The free fatty acid being very irritative causes marked effects on the lung. There is no doubt that bone marrow embolization does occur. Megakaryocytes and bone marrow elements have been found in the lungs as emboli by many investigators. In 1866, Busch injected Vermillion into the tibia. (This is the dye, not the town. [L a u g h t e r]). The dye d i d reach the lungs. Evidence has been presented that arterial-venous shunts in the lungs permit emboli as large as 75 micra to reach the systemic circulation. This explanation obviates the necessity of postulating an increase in right heart pressure that would open the foramen ovale and therefore give rise to fat emboli bypassing the lungs into the general circulation.

That the above is the only or even the major source of fat emboli has been seriously challenged recently for several reasons. The mechanical theory does not explain cases of fat embolism unassociated with trauma. Triolein labeled with I-131 injected into the fracture site of experimental animals is only slowly absorbed. The amount of cholesterol and cholesterol esters in embolic material has been found at levels of 10-30%. Neutral fat deposit usually contains less than 1% cholesterol. Adkins and Foster in 1962 postulated that tissue injury initiated changes leading to colloidal instability of the plasma lipids. The chylomicra aggregated into fat aggregates and were the source of fat emboli.

Fuchsig et al, injected triolein labeled with

I-131 subcutaneously into experimental animals and then produced shock by hemorrhage or an injection of histamine. They found that the shock regardless of the etiology led to a rapid flushing out of the fat not fixed to a cell system. Perhaps one of the reasons fat embolism is seen so frequently after fractures is that the fat is liberated from cell systems by the fracture. Orthopedic surgeons certainly look for fat when aspirating a bloody effusion of the knee as a sign of coexistant fracture. The above authors were able to trace the labeled triolein into the lymphatics and into the innominate vein via the thoracic duct, and hence to the lungs. This information seems to dovetail quite well with the findings of Cope and Letsosis in 1962, who felt that lymphatics played a role in restoring fluids to the blood stream and a major role in restoring protein to the blood stream after shock.

Because the lung is the initial target in fat embolism syndrome, fat embolism is primarily a pulmonary disease. Not all authors would accept that statement. Scully, from the Massachusetts General Hospital, studying Korean War casualties and Sevitt in his monograph, state that despite the degree of pulmonary fat embolism, there is no clinical pulmonary insufficiency without fat embolism to the brain. The validity of this point of view has been questioned repeatedly. Peltier says that the most common important lab test in fat embolism is arterial blood gas studies and in particular the PO_2. A partial pressure of oxygen less than 60 mm. of mercury, indicates severe shunting and is a consistent finding with fat embolism. He suggests actually that cerebral fat embolism does not exist as he could not demonstrate fat in the cerebral vessels. He feels that neurologic symptoms secondary to this syndrome are due to anoxia. He believes the mechanical effects of fat embolism on the capillary bed of the lungs is to produce increased pulmonary blood pressure and signs and symptoms of acute cor pulmonale. Experimental animals tolerate particulate emboli rather well, so investigators have postulated other effects of fat emboli in the lungs. One is the toxic effect of free fatty acids which has been mentioned. Some authors feel that the platelets which accompany the fat to the lungs break-down to release amines in particular, serotonin which cause severe vasospasm. Other authors suspect the basic cause of pulmonary problems in fat embolism to be interference with the lung surfactant. Surfactant is a lipoprotein containing lecithin and is produced by a type of cell lining the alveoli. (TYPE II pneumatocyte). Surfactant functions to stabilize the alveoli and prevent collapse of alveoli as they contract and expand. It also tends to oppose movement of fluid from the capillaries into the alveoli. The changes in the lung in shock and fat embolism syndrome seem to be closely related to the consumption of existing surfactant and failure of new production. With loss of surfactant the alveoli collapse, fluid moves into the alveoli (micro-circulatory leak). Not only albumin, but molecules as large as fibrinogen can now penetrate the alveoli. The loss of surfactant may be due to hypoperfusion. Whatever the cause, the effect of loss of surfactant are edema, hemorrhage, and atelectasis. These pathologic processes are prominent in both pulmonary fat embolism and post traumatic respiratory distress syndrome. Nowhere in the literature did I find the suggestion that post traumatic respiratory distress syndrome and fat embolism might be variants of the same basic disorder, but they share many features in common. I might be tempted to consider the possibility.

We should consider treatment of fat embolism. The first step is the immediate splinting and careful handling of all fracture patients. This may be the most helpful thing we can do. The proper splinting minimizes the leak of fat into the circulation. Of course, we are not sure that this is really a factor. Second, the patient needs a good intravenous to permit infusion of fluids and blood or both for the treatment and/or prevention of shock. Fractures bleed considerably and even a physician experienced in fracture care tends to underrate and undertransfuse hemorrhage secondary to fracture. A central venous pressure monitor is often very helpful.

Intravenous alcohol has been standard treatment of fat embolism since 1933. The present rationale for its use is that it acts to inhibit lipase activity. It also is a pretty good sedative. If you use it, the usual schedule is 1000 cc's of 5% dextrose and 5% ethanol per 12 hours, beginning on the day of injury and continuing for 3-5 days.

Dextran may be of some value in that it acts as a plasma expander and thus treats shock. It also alters the charge on the surface of eryth-

rocytes and seems to "siliconize" vessel walls and thereby improves the micro-circulation. Dextran at the rate of 500 ml. every 12 hours should be continued until the patient is symptom free. There are conflicting opinions about this form of treatment.

Heparin has been given for its lipolytic affects, but recent studies have been unimpressive as to the beneficial effects. Peltier states that if it has any place in the treatment of fat embolism, it is for its prevention of aggregation of platelets and their release of serotonin. He also states that he no longer uses either heparin or dextran.

After adequately treating the shock and stabilizing the fractures, the next major problem becomes support of respiration after the fat embolism syndrome has appeared. The objective is to maintain a partial pressure of oxygen between 60 and 80 mm of Hg with an oxygen saturation of 90% or better. This usually requires oxygen therapy, but we are beginning to find out that oxygen is not as completely innocuous as once thought. In fact, animals who are kept breathing oxygen under high pressure for a period of time have developed alveolar septal thickening with edema and pulmonary hyaline membranes. These are the same things that are seen in cases of post traumatic respiratory distress syndrome. The possibility that oxygen at high levels may contribute to the syndrome is real. It is now recommended that these patients be titrated. In other words, positive pressure assisted ventilation with room air should be tried first. If this does not help, try 40% oxygen. Increasing concentrations of oxygen may have to be used, but it has dangers. The PO_2 should be between 60 and 80 mm of Hg.

The type of respirator most commonly used has been the positive pressure respirator. However, the decreased compliance and very small amount of pressure required to occlude the pulmonary-capillary circulation, has prompted some authors to suggest volume type respirators.

Tracheostomy may have to be performed to aid in controlling secretions, especially when the partial pressure of oxygen is below 60 mm of Hg. If that figure cannot be maintained by oxygen tent or nasal catheter, an endotracheal tube might be tried.

Steroids seem to be of value, both in the treatment of post traumatic pulmonary distress syndrome and fat embolism syndrome. They are given 1-2 gm/24 hours in divided doses for 3-5 days and then stopped abruptly.

The mortality rate has been reported as high as 67% in fat embolism. In fact, Dr. John Knowles, in his discussion at the Clinical Pathologic Conference at the Massachusetts General Hospital described a death rate in fat embolism as high as 85-90%. The mortality rate, of course, is dependent upon the degree of involvement. Sevitt states that the more severe and fatal cases get reported and tend to clutter the literature. The fatality rate in his cases is 12%, using fairly strict criteria for diagnosis. When patients recover, the majority recover completely in two to four weeks. Severe neurologic deficit may persist for a year or two, but this apparently is rare. What happens to the fat? Some feel that it is lost in the urine and sputum or it may be metabolized or even returned to the circulation as chylomicra.

I suspect that Dr. Barlow, at autopsy, found very heavy lungs which were congested and edematous and fat embolism.

DR. RICHARD F. NICE'S DIAGNOSES SYSTEMIC FAT EMBOLISM

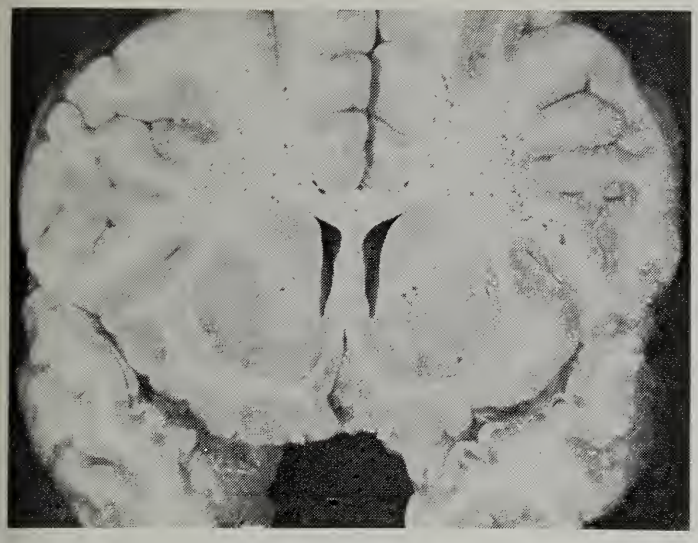
*DR. R. G. OLSON: That leaves the pathologist very little to say.

DR. BARLOW: Do you ever recall a time when I had little to say? (Laughter)

At autopsy the findings are very much as Dr. Nice described. The traumatic injuries noted in the protocol were present and the lungs were 1200 grams each. These were quite heavy. They were congested and edematous. The brain was quite heavy and weighed 1625 grams. There was no evidence of traumatic injury to the brain, however. On cut section there was a striking finding. In this first gross photograph (Fig. I) you will note many petechiae within the white matter, while there is no change in the gray matter. This is the characteristic gross picture of cerebral fat embolism. You do not always need fat stains to make the diagnosis of fat embolism. Here is a picture of the pulmonary capillaries some of which show marked congestion and you can see the hemorrhage and protein in the alveoli. However, there are large clear spaces within the capillaries where the fat has been dissolved out. (Fig. II). The next two photomicrographs show a fat

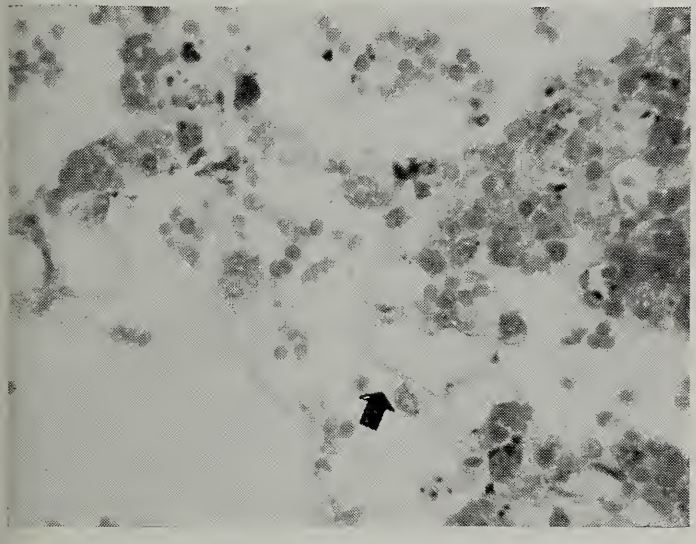
*General Practitioner, Sioux Valley Hospital

Figure I



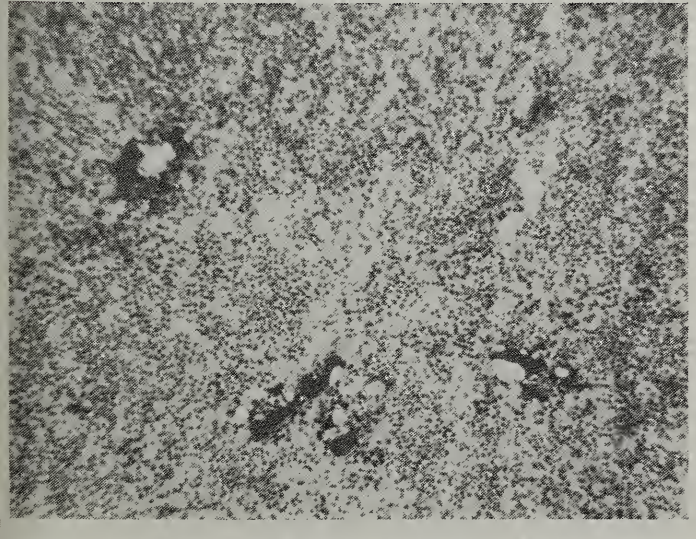
The central white matter is diffusely involved by multiple petechial hemorrhages characteristic of fat embolism.

Figure II



Large clear spaces (arrow) represent capillaries filled with fat (see following pictures).

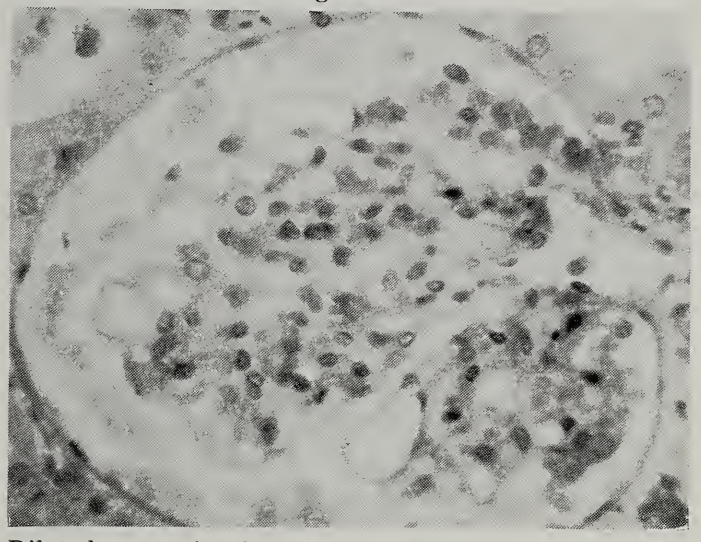
Figure III



Three dark areas are fat in capillaries (frozen section sudan IV fat stain of lung).

stain on the lung demonstrating the abundant fat with Sudan IV stain. (Fig III) There were fat emboli to the kidney in this case as can be demonstrated by the dilated capillaries on hematoxyin and eosin stains. (Fig. IV)

Figure IV



Dilated spaces in glomerulus represent capillaries filled with fat.

Cerebral fat embolism has been known for some time. The reasons given for the involvement of the white matter as opposed to the normal gray matter is that there is abundant vascularity of the cortex with many anastomosies while in the white matter there is less vascularity with many end vessels. This explains why embolism to the vessels of the white matter can produce small hemorrhagic infarcts. The incidence of fat embolism, as Dr. Nice discussed, is unknown. An incidence of more than 90% of pulmonary fat embolism was found during the Korean War. However, in only 19% of these cases was it more than slight. In 4% renal fat embolism was found; and in only 1% was cerebral fat embolism found. I would like again to reiterate that fat embolism can be associated with many conditions, all of which are not fractures. These include diabetes mellitus, burns, severe infection, inhalation anesthesia, soft tissue injury, neoplasms, osteomyelitis, blood transfusions, cardio-pulmonary bypass, decompression, renal infarction, renal homotransplantation, steroid induced fatty liver, and sickle cell disease. The explanation for fat embolism in these conditions is not too well known. An excellent recent article by Evarts in THE SURGICAL CLINIC OF NORTH AMERICAN again shows that the severe confusion and rapid pulse and respiratory rate distinguish this condition from head trauma. He also pointed out that localizing signs were more

common in head trauma. The lucid interval after head trauma is often only 6-10 hours where that in cerebral fat is 18-14 hours.

DR. NICE: May I interrupt here? I would like it established that what we are talking about is symptoms. The emboli usually occur at the time of the trauma and it takes this long for the symptoms of the cerebral emboli to occur.

DR. BARLOW: The clinical manifestations of fat embolism with fever, tachycardia, tachypnea, normal blood pressure and mental variations with variable neurologic symptoms has been described. Petechiae in the conjuntiva, axillae and neck are also present. As far as the laboratory goes decrease in hemoglobin, which is unexplained; and free fat in the urine which may be stained by Sudan III or oil red O is seen. I would mention that you look for the fat on the urine surface. You do not expect to see it in the sediment. This is a problem we had the first time we starting looking for fat from fat embolism. I might mention that another test for fat embolism has been the serum lipase which was quite normal in this case as would be expected at this early time in the disease.

FINAL ANATOMIC DIAGNOSES

1. Systemic fat embolism with involvement of brain, kidneys, and lungs.
2. PULMONARY EDEMA, CONGESTION, AND HEMORRHAGE, ACUTE, BILATERAL
3. MULTIPLE LACERATIONS AND ECCHYMOSES OF FACE, ARMS, AND LEGS
4. SCATTERED PETECHIAE ANTERIOR CHEST AND THIGHS BILATERALLY
5. RIGHT FEMORAL AND PATELLAR FRACTURES
6. NASAL FRACTURES

*DR. CHARLES FREEMAN: You say that the syndrome of systemic fat embolism and post traumatic respiratory distress syndrome may be one?

DR. NICE: I wonder if they are not similar. However, I might add that in a recent symposium on pulmonary effects of nonthoracic trauma printed in the Journal of Trauma in 1968, most of the papers discussed these two entities as separate problems.

**DR. M. BROWN: If fat embolism is so immediate after the fracture, there is no use using any preventative measures.

DR. NICE: Though I think it is a matter of degree, I certainly think good splinting will prevent further fat embolism.

DR. R. G. OLSON: One should also remember that reduction of the fracture is trauma and can increase the amount of fat embolism.

DR. NICE: At the recent meetings in Chicago, there was some discussion on what happens after intramedullary nailing of fractures. It would seem that the incidence of fat embolism is really quite rare, probably 1-3%. It is probably never extremely significant. Some feel that patients who have had a fracture and are in traction have more fat emboli than those patients who have internal fixation of the fracture. This may be due to the instability of the fracture while the patient is waiting for the nailing.

†DR. PHIL GROSS: You would certainly think that intramedullary nailing would cause fat embolism. For this reason a special study was set-up and no significant fat embolism was found. Some orthopedic surgeons would certainly prefer to wait after serious fractures before doing intramedullary nailing so that the patient could have his fat embolism and get over it.

††DR. ROSSING: Do you use heparin?

DR. NICE: No.

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Scientific PAPER

MESOTHELIAL CYST PRESENTING AS AN ANTERIOR SUPERIOR MEDIASTINAL MASS

Interesting Case Report

Martin Frank Petereit, M.D.*

Mesothelial cysts, one division of congenital mediastinal cysts, are uncommon and interesting lesions. These cysts may be pericardial or pleural. Pericardial cysts are usually found in the right pericardiophrenic angle.[1,2]

Lillie et al. (1950) reviewed mediastinal cysts. Out of 29, 5 were in the "middle or superior mediastinum."[3] Mills (1959) reported a case in the superior mediastinum which was located between the great vessels and the trachea.[4] By 1959, about 120 cases of pericardial coelomic cysts had been reported; only 8 were not in pericardiophrenic angle.[1] Pachter and Lattes (1963) reported 20 mediastinal cysts; pericardial cysts were the second most common and 2 of these were in the anterior superior mediastinum.[5] Ochsner and Ochsner (1966) reported 42 cases of congenital mediastinal cysts; 14 of these were mesothelial (11 of pericardial origin and 3 suggested pleural origin). Except for one in the anterior superior mediastinum, no mention was made of the actual location of these cysts.[2] Mesothelial cysts were the most common in that series.

Therefore, up to 1966, only about a dozen pericardial cysts, not in the usual location, have been reported. Of these, not all were in the anterior superior mediastinum. The reports of observed growth of these cysts are even more rare. They are usually discovered incidentally and are usually asymptomatic.[2,4,5] Lam (1947) presented a case which started in the left hilar area and was observed for 10 years prior to its removal. At the time of removal, it covered the entire anterior aspect of the heart.[6] One of the cases reported by Ochsner and Ochsner was observed for 7 years. During the year prior to its removal, it doubled in size. The patient complained of dyspnea and frequent episodes of substernal pain.[2]

This case is presented to record another rare instance of a coelomic cyst in the anterior superior mediastinum, to record what appears to be the third case report of observed growth of one of these cysts, and to call further attention to this entity.

CASE REPORT

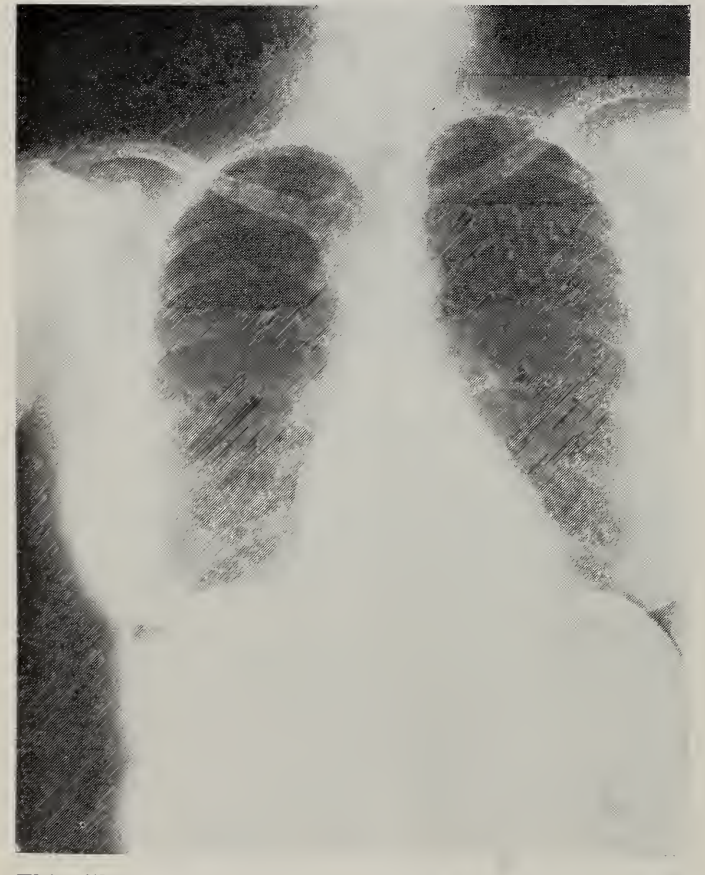
This 42-year-old female had a routine hospital employee chest film taken on 10/8/66 (Fig. 1). It was interpreted as normal. The next film was taken on 7/9/67 (Fig. 2). At this time, a small soft tissue shadow was seen adjacent to the right side of the distal end of the trachea. This was passed off as a "vascular shadow." For some reason, she did not report for her film in 1968. In 1969, (Figs. 3, 4 and 5) a smooth, well defined, oval shaped, noncalcified, anterior superior mediastinal soft tissue mass, measuring 7.0 cm. x 5.0 cm. was quite obvious. Tomography confirmed that the mass did not displace or compress the tracheal air

*Medical X-Ray Center, Sioux Falls, South Dakota.

Figure 1

Erect PA chest roentgenogram of a 42-year-old female taken on 10/8/66. Interpreted as normal.

Figure 2



This film taken on 7/9/67. At this time, a small soft tissue shadow was observed adjacent to the right side of the distal end of the trachea. Thought to represent a "vascular shadow."

Figure 3

This erect PA chest roentgenogram taken about 2 years after that in Fig. 2. (6/11/69).

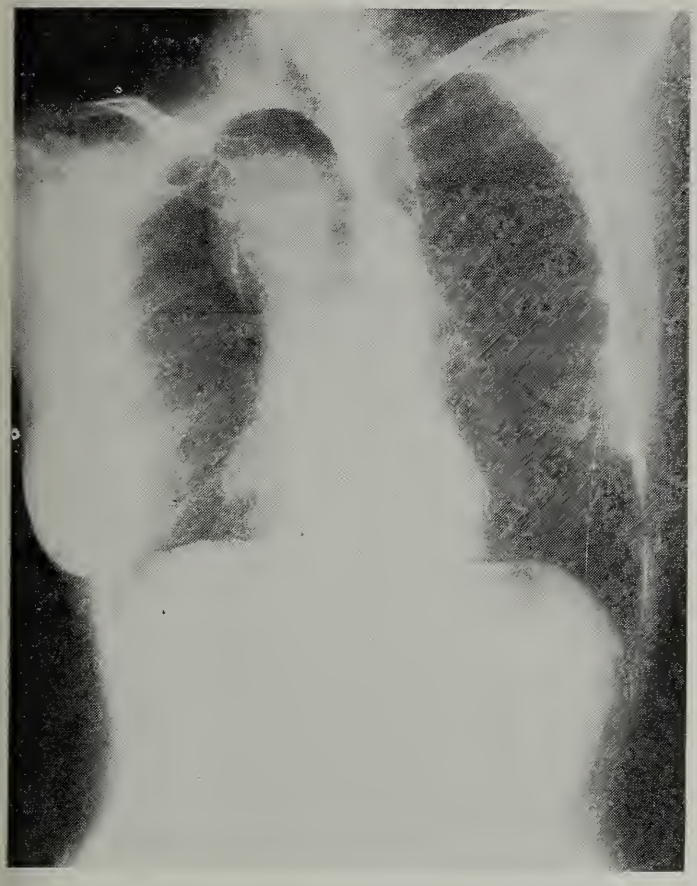
Figure 4

Erect lateral chest film. Same date as in Fig. 3.

(Continued on Page 25)

(Continued from Page 22)

Figure 5



Left anterior oblique view. Same date as in Fig. 3. Figures 3, 4 and 5 show a smooth, well defined, oval shaped, non-calcified soft tissue mass, measuring 7.0 cm. x 5.0 cm. which does not displace or compress the tracheal air column. The mass is in the anterior superior mediastinum.

column. A barium esophagram revealed minimal impression on the proximal esophagus, but was otherwise normal. She was asymptomatic.

On 6/23/69, thoracotomy was performed by Dr. Robert E. Nelson. A clear, fluid-filled cyst was removed without difficulty. Her recovery was uneventful. The pathology report was given by Dr. Loyd R. Wagner: "Gross: The specimen is composed of an irregular mass of membranous fibrous tissue weighing a total of 3.9 gm., the entire mass measuring 8.5 x 4 x 2 cm. Most of this is a thin filmy translucent membrane. At one end there is attached a mass of dark bluish-black tissue consistent with an anthracotic lymph node. Microscopic: Sections of this tissue show several lymph nodes which are markedly anthracotic. There is reticulum cell hyperplasia, but the germinal centers are discrete. The wall of the cyst is composed of collagen, and the lumen is lined by flat cuboidal to almost pavement type cells. A few papillary excrescences are present, and there are a few tiny fragments of inflammatory exudate in the cyst lumen. This cyst of the anterior mediastinum is of coelomic type, and would be consistent with a development cyst of mesoderm tissue. This type of cyst frequently arises from the pericardial sac."

It should be noted that the cyst did not originate in a lymph node. There was a capsule about each of the nodes.

DISCUSSION

These are best classified as mesothelial cysts. Most seem to arise from malformations of the pericardium, but some are apparently the result of pleural malformation. If a cyst is located a considerable distance from the pericardium, it is difficult to determine whether it originated in the pericardium or pleura.[2] These cysts are discovered from the second to the sixth decades.[1,2,4,5] As stated, most are located at the right pericardiophrenic angle. Most measure about 3 to 6 cm., but they may reach grapefruit size. They are usually filled with clear fluid and appear homogeneous on the roentgenogram.[2] They have been called simple cysts, springwater cysts, and cardiophrenic angle cysts, but they are usually known as pericardial coelomic cysts.[7]

Most agree that these cysts occur in the early stage of the embryo, from failure of fusion of one or more of the mesothelial lacunae from which the pericardium and pleura are formed.[3,4,7] The lacunae close normally, beginning at the cephalic end and proceed toward the diaphragm, where the process stops.[4] The degree of failure of fusion determines whether the structure is separate (cyst) or communicates with the pericardium or pleura (diverticulum).[3]

One author feels that if such a cyst is in its most common position (right cardiophrenic angle), and if there are no symptoms, operation is probably not necessary. However, if in an atypical location, mediastinal exploration becomes necessary.[2]

The differential diagnosis of a mass in the anterior superior mediastinum would include: thymoma, thymic cyst, teratomatous cyst, lymphangiomatous cyst, vascular aneurysm, and substernal thyroid.

SUMMARY

A case of mesothelial (coelomic) cyst in the anterior superior mediastinum of a 42-year-old female is presented. Most are found in the right pericardiophrenic angle; any other loca-

tion is very rare. That this is another instance of observed growth of one of these cysts is even more rare. These cysts are usually discovered on routine chest film examination and most are asymptomatic.

Mesothelial cysts may be pericardial or pleural. If a cyst is located a considerable distance from the pericardium, it is difficult to determine whether it orginated in the pericardium or pleura.

If such a cyst is in its typical location, and if the patient has no symptoms, operation is probably not necessary. If it is in an atypical location, surgical removal becomes necessary.

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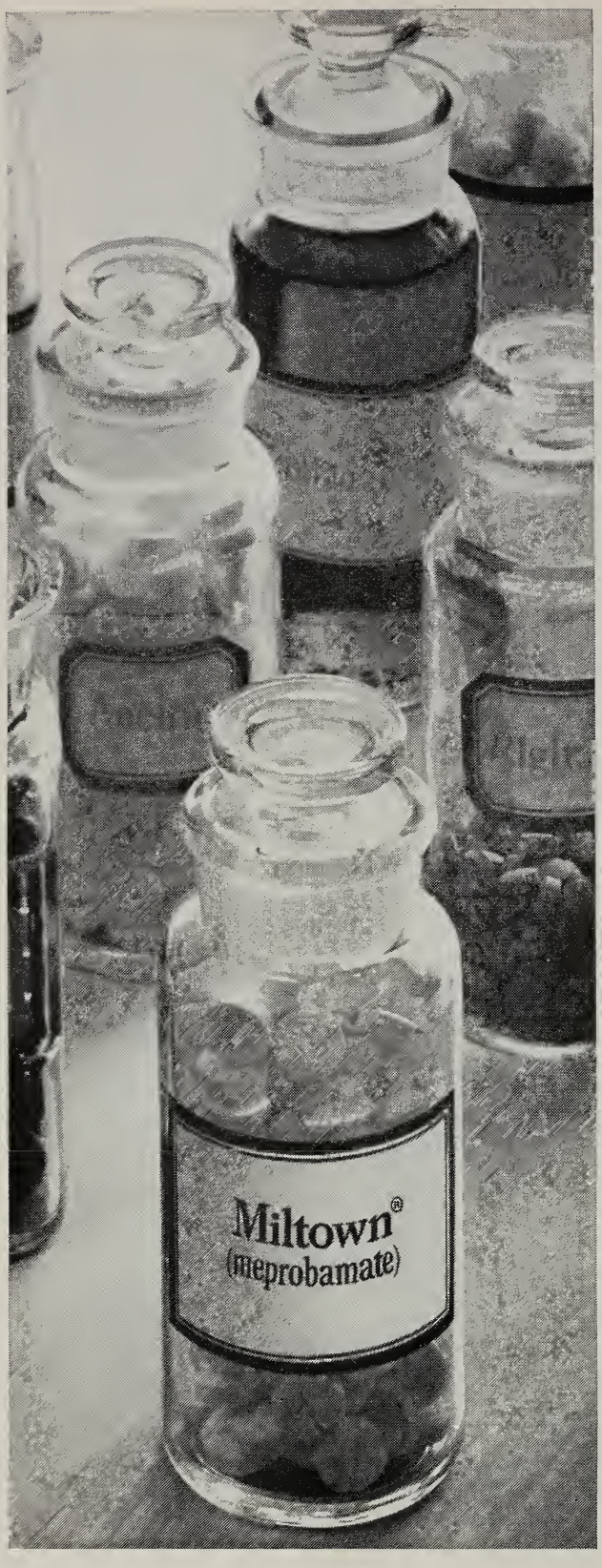

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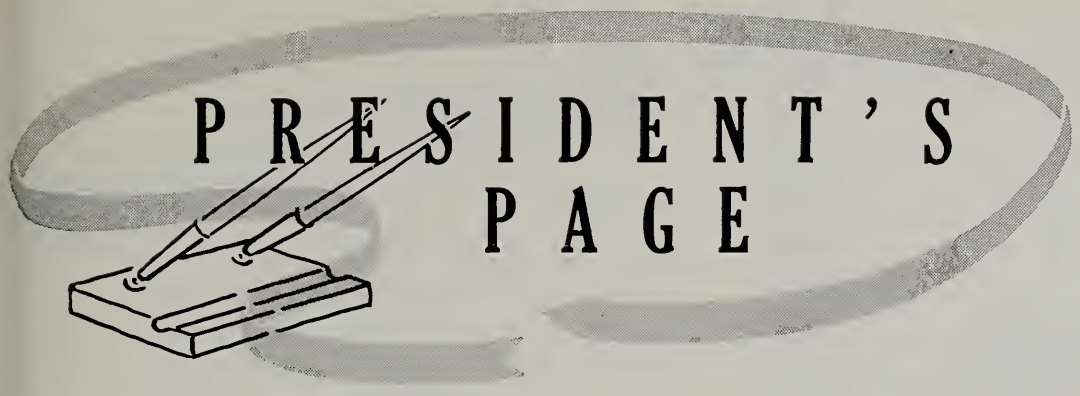


PRESIDENT'S PAGE

I think that we are witnessing the beginning of a new and progressive era in the vital field of medical education in South Dakota and the Upper Midwest. It is an era of tremendous import to all of us and to the generations ahead.

I believe this for two reasons. First, the Hardin Report on Medical Education in South Dakota, with its recommendation that South Dakota underwrite a three-year, degree-granting medical school was received enthusiastically in nearly all quarters. Out of this, as you know, has come the unanimous endorsement of the Board of Regents and Governor Richard F. Kneip. The governor's recent State of the State message specifically called upon the legislature to look to the funding of such an important school.

We have in other words, important impetus for the concept of total medical education **in** South Dakota, an element which should have an encouraging result eventually in reducing the physician shortage which plagues our state. It is almost axiomatic that if we can educate more young men and women **IN** South Dakota, we'll have considerably fewer of them going **OUT** of South Dakota. Fewer will have left here in the first place.

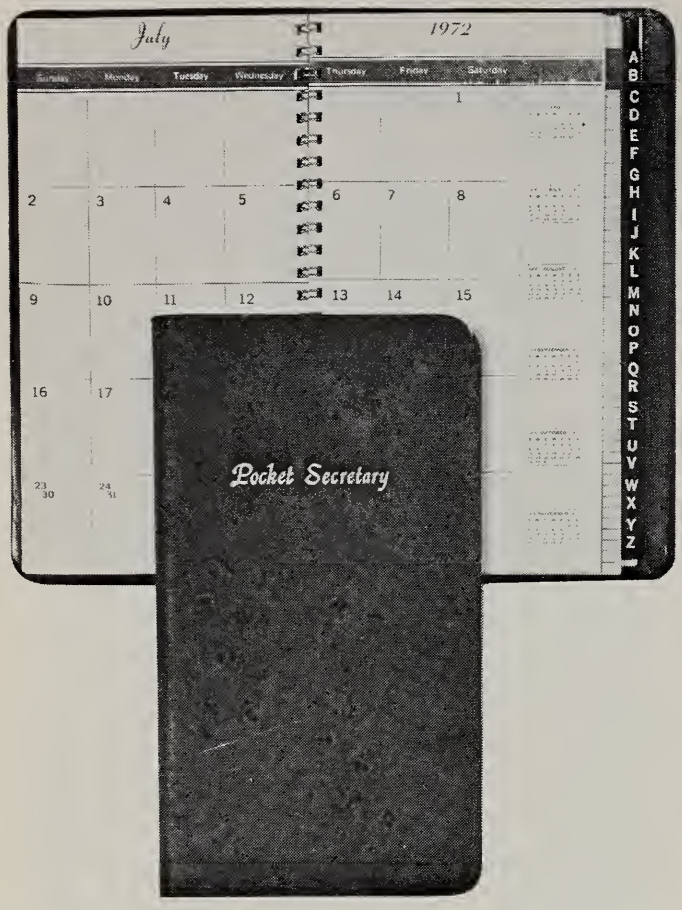
The second cause for optimism lies in the Midwestern Board for Medical and Allied Education and its program to help meet the need for additional health services in the smaller municipalities and rural areas of the region. The board embraces medical, legislative and educational manpower in Minnesota and both Dakotas and it is seeking long-range answers to both the physician shortage and the physician distribution. One immediate objective is to devise a plan to make maximum use of clinical teaching facilities by medical students enrolled in the state universities. I think that within a year or two we will see some concrete progress.

The Midwestern Board is supporting a University of Minnesota program to send third-year medical students into the field for externships as rural physicians' associates. These young men learn, first-hand, much of the routine which goes into the average doctor's day and accomplish two things: further their own education and relieve the proctor-physician of a considerable share of his more time-taking, every-day duties. This program is being received enthusiastically throughout Minnesota and will be expanded next year. I hope and think we will see it in South Dakota some day soon.

In short, we are experiencing a new awareness of the importance of medical education and the need to develop our own regional attack upon the twin problems of shortages and distribution. They are problems which have been developing for a long time and there is no quick and easy solution for them. The important point is that we are tackling them with vigor and imagination.

Our children and their children have a big stake in what we are doing here and now.

G. Robert Bartron, M.D.
President



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"DRUG ABUSE" TAPES AVAILABLE

South Dakota Blue Shield recently sponsored a series of six radio programs on the subject of "Drug Abuse". The tapes of these shows are available upon request for groups or organizations such as P.T.A. chapters, Extension Clubs, service organizations or others interested in this topic. The tapes include interviews with Donald Frost, M.D. of Sioux Falls; Mr. Doug Hudson, Director of the Alcohol and Drug Referral Center in Sioux Falls; and Mrs. Jean Gatch, Drug Crises Team Coordinator for the State of South Dakota; along with a speech given by Art Linkletter in Rapid City last summer. All requests should be directed to the Public and Professional Relations Department, South Dakota Blue Shield, 711 North Lake Avenue, Sioux Falls, South Dakota 57104.

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Letter to Editor

January 9, 1972

Mr. Richard C. Erickson
Executive Secretary,
South Dakota State Medical Association

Dear Mr. Erickson:

I wish to express my sincere gratitude to you and your organization for their generosity. I received the South Dakota State Medical Association Scholarship this year. This award will allow me to continue my education relieved to a large extent of the financial burden. Thank you very much.

Sincerely,
Don Oliver

ADVANCES IN CLINICAL ENDOCRINOLOGY

This course is intended to summarize recent progress in endocrinology as applied to the diagnosis and therapy of specific endocrine disorders. The program is sponsored by the American College of Physicians, and will be held at the Boston University Medical Center March 7-10, 1972. For further information, please contact the Registrar, Postgraduate Courses, American College of Physicians, 4200 Pine Street, Philadelphia, Pennsylvania 19104.

★ ★ ★

DRUG ABUSE

In testimony before the Senate Subcommittee on Juvenile Delinquency Dr. Henry Brill said that physicians have a particular responsibility in controlling drug abuse. The New York physician, who is a member of the AMA Committee on Alcoholism and Drug Dependence, said that barbiturates and minor tranquilizers have "an indispensable place in the practice of general medicine and psychiatry." But with regard to street abuse, he said, ". . .we vigorously support efforts to control street traffic and diversion of drugs. We also subscribe to and support the intensification of educational and persuasive techniques to help assure the proper utilization of these drugs in medicine."

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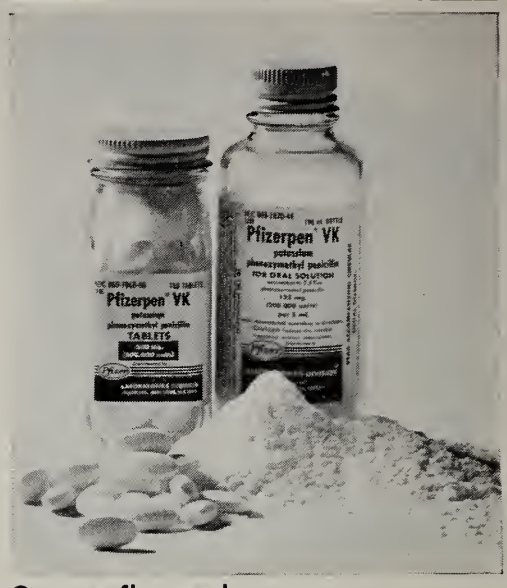

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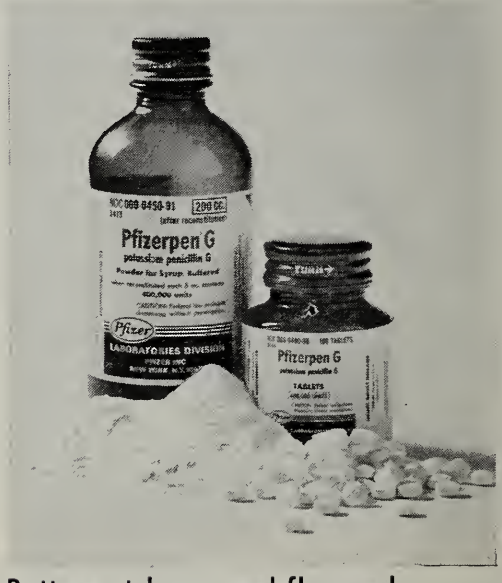

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News Notes • Changes • Births • News

The Midwestern Board for Medical and Allied Education chose **G. Robert Bartron, M.D.**, Watertown, chairman of the three-state agency to strengthen medical education and health care in the upper midwest.

* * * *

The Watertown District has elected the following officers for 1972: **Jose Michieli, M.D.**, president; **James Rud, M.D.**, vice president; and **T. J. Wrage, Jr., M.D.**, secretary-treasurer.

* * * *

Walter P. Damm, M.D., Redfield, has retired from service at the Redfield State Hospital and School after 32 years. Since joining the staff in 1940 Dr. Damm has served as staff physician, superintendent and clinical director.

* * * *

G. Robert Bartron, M.D., President of the South Dakota State Medical Association, made his official visitation to the Black Hills District Medical Society on December 9. He spoke on medical education in South Dakota to the 32 physician members present.

* * * *

Henry M. Parrish, M.D., Vice President for Health Affairs at the University of South Dakota, has been elected to membership in the Association for Academic Health Centers. This newly formed organization is made up of the Vice Presidents for Health Affairs in the major universities of the United States and Canada, and its membership represents the top medical educators in the two countries.

* * * *

The American Medical Association has notified the South Dakota State Medical Association that **A. P. Reding, M.D.**, Marion, has been reappointed to the Council on Rural Health of the AMA and **A. A. Lampert, M.D.**, Rapid City, has been reappointed to the Council on Legislation of the AMA.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

C. S. Roberts, M.D., Brookings, has been elected chairman of the recently formed Brookings Area Betterment Committee which was organized to help the Brookings area mobilize and coordinate people and resources to foster community progress and to meet community problems.

* * * *

The 1972 officers for the Brookings - Madison District are **F. X. McCabe, M.D.**, president; **Werner Klar, M.D.**, vice president; and **C. M. Kershner, M.D.**, secretary-treasurer.

* * * *

C. B. McVay, M.D., Yankton, addressed the Brooklyn Surgical Society and was visiting professor of surgery at the New York University Downstate Medical Center in Brooklyn on January 7 and 8.

* * * *

The Mitchell District Medical Society's officers for 1972 are **John O. Judge, M.D.**, President; **Ralph Erdmann, M.D.**, Vice President; and **James Vose, M.D.**, Secretary-Treasurer.

* * * *

C. S. Roberts, M.D., Brookings, was chosen Chamber Member of the Month for Brookings and was cited by the mayor for his efforts on behalf of the library bond issue.

CONSUMER VIEW OF U. S. MEDICAL CARE SYSTEM

Three out of four heads of American households agree that there is a "crisis" in medical care today, according to a nationwide survey conducted under the direction of Odin W. Anderson, associate director of The University of Chicago's Center for Health Administration Studies. Three out of four also agree that a national health insurance program, patterned on Medicare but extending benefits to the total population, would bring about better health care to persons of low and moderate incomes. Other findings: There is wide disagreement on whether such a plan should be adopted — 42 percent oppose it; only one in 10 is unhappy with the overall quality of his own health care; 38 percent are worried about the high cost of medical care and the accessibility of medical services — as measured by the amount of time spent waiting in doctors' offices and the difficulty of obtaining emergency care.

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CANCER CONFERENCE SCHEDULED

The Seventh National Cancer Conference will be held in Los Angeles, California, September 27, 28, and 29, 1972. This conference is co-sponsored by the American Cancer Society and the National Cancer Institute. All members of the medical and related professions are invited to attend. There is no registration fee, and pre-registration is requested. For additional information, contact: Sidney L. Arje, M.D., Coordinator, Seventh National Cancer Conference, c/o American Cancer Society, 219 East 42nd Street, New York, New York 10017.

★ ★ ★

U. OF TEXAS TUMOR INSTITUTE OFFERS PROGRAMS

"Molecular Studies in Viral Neoplasia" will be the subject of the 24th Annual Symposium on Fundamental Cancer Research on March 8, 9 and 10, 1972, at Shamrock-Hilton Hotel in Houston. The meeting will cover a variety of areas including biochemistry, immunology, animal tumors, human tumor studies, electron microscopy and biophysical studies.

"Neoplasia of the Head and Neck" is the topic for the 17th Annual Clinical Conference to be held in Houston at the Shamrock-Hilton Hotel on November 2 and 3, 1972. A panel of otolaryngologists, general surgeons, radiotherapists and others will discuss diagnosis, treatment and end results of head and neck cancer.

Both programs are sponsored by The University of Texas M. D. Anderson Hospital and Tumor Institute at Houston.

★ ★ ★

PEER REVIEW

On the question of peer review, the editor of DETROIT MEDICAL NEWS recently cautioned his colleagues that "unless we can make peer review work for the good of the public, the federal government will foist on us a system of lay review by government employees that will be most objectionable. . ." Dr. John G. Slevin further wrote, "We in medicine must not hesitate to punish those in our profession who violate our ethical code; who render poor medical care or who, few as they are, gouge the public by charging excessive fees. We must recognize that a few physicians are incompetent and a few are greedy. . ."

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Indications
Pre-Sate (chlorphentermine hydrochloride) is indicated in exogenous obesity, as a short term (i.e. several weeks) adjunct in a regimen of weight reduction based upon caloric restriction.

Contraindications
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Warnings
When weight loss is unsatisfactory the recommended dosage should not be increased in an attempt to obtain increased anorexigenic effect; discontinue the drug. Tolerance to the anorectic effect may develop. Drowsiness or stimulation may occur and may impair ability to engage in potentially hazardous activities such as operating machinery, driving a motor vehicle, or performing tasks requiring precision work or critical judgment. Therefore, such patients should be cautioned accordingly. Caution must be exercised if Pre-Sate (chlorphentermine hydrochloride) is used concomitantly with other central nervous system stimulants. There have been reports of pulmonary hypertension in patients who received related drugs.
Drug Dependence Drugs of this type have a potential for abuse. Patients have been known to increase the intake of drugs of this type to many times the dosages recommended. In long-term controlled studies with the high dosages of Pre-Sate, abrupt cessation did not result in symptoms of withdrawal.
Usage In Pregnancy The safety of Pre-Sate (chlorphentermine hydrochloride) in human pregnancy has not yet been clearly established. The use of anorectic agents by women who are or who may become pregnant, and especially those in the first trimester of pregnancy, requires that the potential benefit be weighed against the possible hazard to mother and child. Use of the drug during lactation is not recommended. Mammalian reproductive and teratogenic studies with high multiples of the human dose have been negative.
Usage In Children Not recommended for use in children under 12 years of age.

Precautions
In patients with diabetes mellitus there may be alteration of insulin requirements due to dietary restrictions and weight loss. Pre-Sate (chlorphentermine hydrochloride) should be used with caution when obesity complicates the management of patients with mild to moderate cardiovascular disease or diabetes mellitus, and only when dietary restriction alone has been unsuccessful in achieving desired weight reduction. In prescribing this drug for obese patients in whom it is undesirable to introduce CNS stimulation or pressor effect, the physician should be alert to the individual who may be overly sensitive to this drug. Psychologic disturbances have been reported in patients who concomitantly receive an anorectic agent and a restrictive dietary regimen.

Adverse Reactions
Central Nervous System: When CNS side effects occur, they are most often manifested as drowsiness or sedation or overstimulation and restlessness. Insomnia, dizziness, headache, euphoria, dysphoria, and tremor may also occur. Psychotic episodes, although rare, have been noted even at recommended doses. **Cardiovascular:** tachycardia, palpitation, elevation of blood pressure. **Gastrointestinal:** nausea and vomiting, diarrhea, unpleasant taste, constipation. **Endocrine:** changes in libido, impotence. **Autonomic:** dryness of mouth, sweating, mydriasis. **Allergic:** urticaria. **Genitourinary:** diuresis and, rarely, difficulty in initiating micturition. **Others:** Paresthesias, sural spasms.

Dosage and Administration
The recommended adult daily dose of Pre-Sate (chlorphentermine hydrochloride) is one tablet (equivalent to 65 mg chlorphentermine base) taken after the first meal of the day. Use in children under 12 not recommended.

Overdosage
Manifestations: Restlessness, confusion, assaultiveness, hallucinations, panic states, and hyperpyrexia may be manifestations of acute intoxication with anorectic agents. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension, or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Fatal poisoning usually terminates in convulsions and coma.
Management: Management of acute intoxication with sympathomimetic amines is largely symptomatic and supportive and often includes sedation with a barbiturate. If hypertension is marked, the use of a nitrate or rapidly acting alpha-receptor blocking agent should be considered. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendations in this regard.

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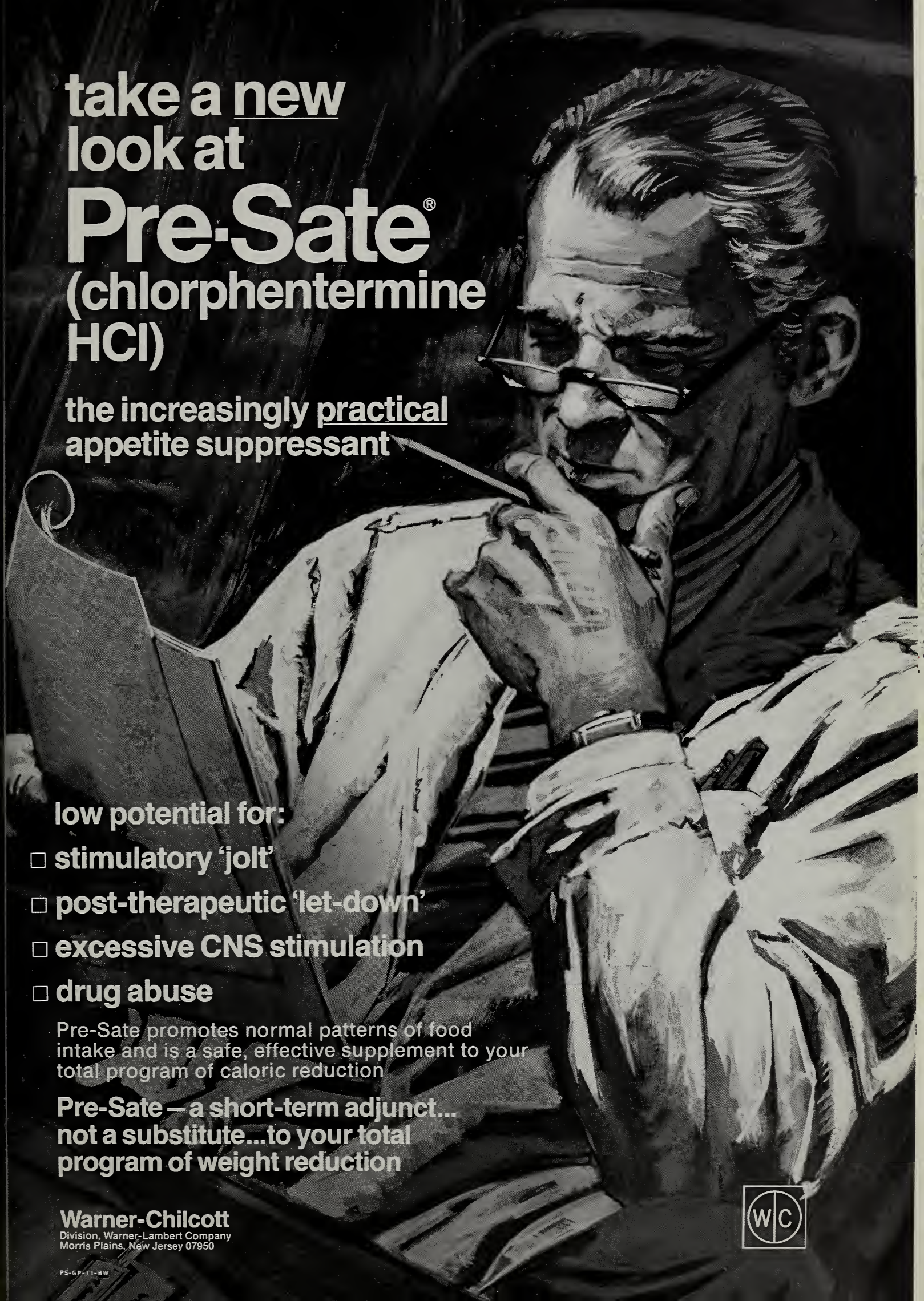
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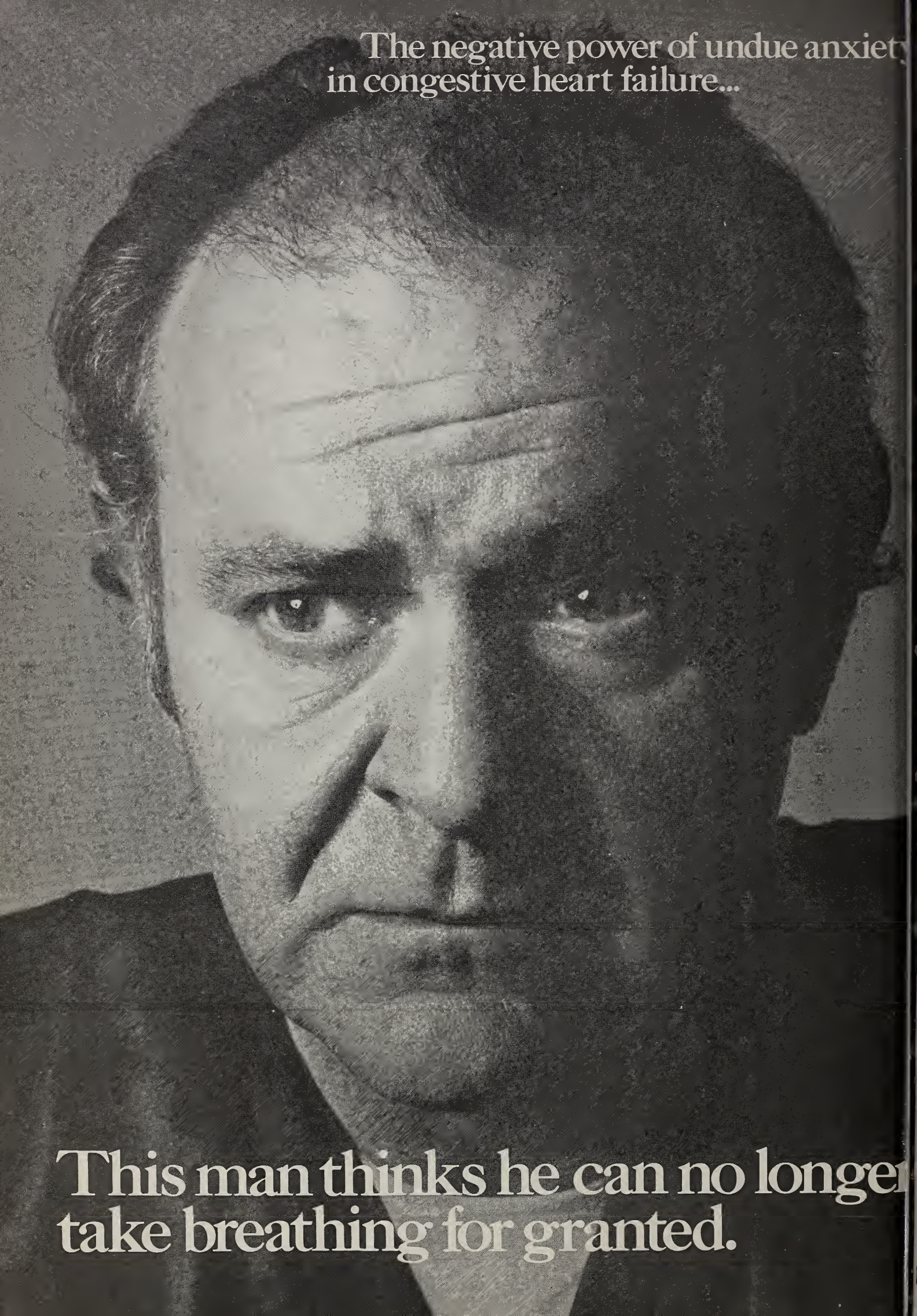
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in congestive heart failure...
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Typical of many patients with congestive heart failure, he also suffers from severe anxiety, a psychic factor that may influence the character and degree of his symptoms, such as dyspnea. His apprehension may also deprive him of the emotional calm so important in maintenance therapy.

Aid in rehabilitation

Specific medical and environmental measures are often enhanced by the antianxiety action of adjunctive Libritabs (chlordiazepoxide). Libritabs can also facilitate treatment of the tense convalescent patient until antianxiety therapy is no longer required. Whereas in geriatrics the *usual daily dosage* is 5 mg two to four times daily, the *initial dosage* in elderly and debilitated patients should be limited to 10 mg or less per day, adjusting as needed and tolerated.

Concomitant use with primary agents

Libritabs is used concomitantly with certain specific medications of other classes of drugs, such as cardiac glycosides, diuretics, antihypertensives, vasodilators and oral anticoagulants, whenever excessive anxiety or emotional tension adversely affects the clinical condition or response to therapy. Although clinical studies have not established a cause and effect relationship, physicians should be aware that variable effects on blood coagulation have been reported very rarely in patients receiving oral anticoagulants and chlordiazepoxide HCl.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit to smallest effective dosage (initially 10 mg or less per day) to preclude ataxia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally, making periodic blood counts and liver function tests advisable during protracted therapy.

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CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

MICHAEL F. FERRELL, M.D.*
Internist - Discusser

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SIXTY-SIX YEAR OLD CAUCASIAN FEMALE WITH PTOSIS OF THE EYELIDS

CASE NO. 70-1397

This 66 year old caucasian female entered Sioux Valley Hospital with a chief complaint of ptosis of the eyelids.

The patient first noted the gradual onset of drooping of the eyelids about three to five years prior to admission. This had become progressively worse, but was not more marked at the end of the day as compared to the beginning. It was associated with bilateral blurring of vision as the day progressed but no diplopia. During the past several years there was the progressive onset of difficulty in swallowing which varied from time to time, but was not worse at the end of the meal as compared to the beginning. There was no change in speech or difficulty with chewing. The patient also complained of generalized weakness most marked on climbing stairs, but noted no difference in gait or ability to use the arms. She had intermittent joint pains. There was no weight loss or pain. She had taken blood pressure pills for some period of time.

PHYSICAL EXAMINATION: Pulse - 76/minute and regular, respirations - 12/minute and regular, temperature 98.6°F., blood pressure - 130 systolic and 80 diastolic. The height was 5 feet and 4 inches and the weight was 141 pounds. The patient was a neurasthenic appearing lady with normal mental status. The eyelids were ptotic, but the extraocular muscles and fundoscopic examination was unremarkable. The pupils were round and equal and reacted to light. There was no nystagmus. The thyroid was normal in size and consistency. Both carotid pulses were present. Corneal reflexes, light touch, pain were normal on both sides of the face. The face was symmetrical. The tongue protruded normally. The chest was clear to auscultation and percussion. The heart was not enlarged. There were no murmurs and there was a regular sinus rhythm. There were no palpable organs, masses, spasms, or tenderness on abdominal examination. There was no muscle weakness or wasting in the upper extremities. The pelvic girdle was weak, but there was no wasting in the lower extremities. The patient had difficulty climbing stairs. There were no fasciculations. Pain, vibration senses were normal in all extremities. The plantar reflexes were flexor. Stretch reflexes were active and symmetrical. The pelvic and rectal examinations were unremarkable. The tensilon test using both saline and tensilon showed no improvement in strength.

CLINICAL PATHOLOGY DATA: Urinalysis - straw colored and clear, specific gravity - 1.014, pH - 5.0, negative for protein, glucose, ketone bodies, hemoglobin, and bile. There were 1 - 2 leukocytes per high power field in the sediment. The hemoglobin was 13.1 gm/100 ml, red blood cell count - 3.90 million/mm^3, hematocrit - 38 volumes %, mean corpuscular hemoglobin - 33 micromicrograms, mean corpuscular volume - 96 cubic micra, mean corpuscular hemoglobin concentration 35%. The total leukocyte count was 4,900/mm^3 with 47% neutrophils, 6% eosinophils, 47% lymphocytes. The red cells showed slight anisocytosis, but were normochromic. Platelets were adequate on smear. Erythrocyte sedimentation rate was 9 mm/hr. The serology was nonreactive. No LE cells were seen in three preparations. Total protein, bil-

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(This case was discussed at Annual Meeting of South Dakota Society of Internal Medicine in Sioux Falls, South Dakota in September, 1970.)

irubin, alkaline phosphatase, calcium, uric acid, blood urea nitrogen, cholesterol, fasting glucose, protein blood iodine were all within normal limits. Serum glutamic oxaloacetic transaminase was 63 units (normal 8 - 40 units). Lactic dehydrogenase was 81 units (normal 25-75 units), aldolase - 2.5 units (normal 3 - 8 units), creatine phosphokinase - 70 units (normal 0 - 25 units). pH was 7.40, PCO_2 - 55 mm of Hg, CO_2 content - 32 meq/L, sodium - 134 meq/L, potassium - 4.3 meq/L, chloride - 97 meq/L. The glucose tolerance was - fasting 94 mgs/100 ml. - 30 minutes, 154 mgs/100 ml - one hour, 178 mgs/100 ml. - two hours, 168 mgs/100 ml. - three hours, 104 mgs/100 mil - and four hours - 86 mgs/100 ml. Electrocardiogram was normal. A chest film was normal. Upper gastrointestinal series and barium enema were normal. There were some calcified densities in the region of the gallbladder. Pulmonary function studies: vital capacity - 2250 cc (90% of predicted), maximum voluntary ventilation - 62 L/Min. (91% of predicted), timed vital capacity - 74% at ½ second, 81% at one second, 98% at 2 seconds, and 100% at three seconds. There was no change after isuprel. A diagnostic procedure was performed.

DR. FERRELL: I will not read the protocol, but simply summarize it. The history in this 66-year-old Caucasian female suggests neuromuscular disease. The physical examination, however, seems to rule out neuromuscular disease and suggests rather a muscular disease. There is an absence of neurologic signs with no sensory or motor findings. Incidentally, there is no suggestion of an endocrinopathy. There is an abundance of lab data, but the only really significant findings are an elevated serum glutamic oxaloacetic transaminase, an elevated creatine phosphokinase, a slightly elevated lactic dehydrogenase, a normal aldolase, and an x-ray showing gallstones. The remainder of the lab work is negative and this includes a complete blood count, erythrocyte sedimentation rate, urinalysis, protein bound iodine, syphilis serology, electrolytes, glucose tolerance test, and various blood chemistries. Pulmonary function tests, electrocardiogram, chest x-ray, gastrointestinal series, barium enema, preparations for lupus erythrematous cells were normal. A tensilon test is also negative.

In considering an approach to defining the etiology of the disease in this case, as I mentioned above, neuromuscular disease is a first suspect. Specifically, myasthenia gravis, multiple sclerosis, and polyneuritis are possibilities. However, as the protocol continues, it becomes apparent from the clues provided that such is not the case. I am directed toward considering diseases of the muscular system, by the symptom complex, physical findings, and laboratory findings. The absence of muscle atrophy, fasciculation, diplopia, and lack of increasing weakness as the disease progresses as well as negative neurologic examination appears to corroborate the impression of muscular disease. The elevated transaminase and creatine phosphokinase indicate a breakdown of muscular tissues. The negative tensilon test and history of increasing weakness, particularly with continued use of the muscles tends to negate a diagnosis of myasthenia gravis. In trying to establish a pattern for a differential diagnosis, one must consider the following significant points in history: 1. She is a 66-year old white female. 2. There has been a three to five year history of drooping eyelids, which is becoming progressively worse. 3. There is blurring of vision, but no diplopia. 4. Progressive, but variable dysphagia. 5. Generalized weakness, most marked on climbing stairs. 6. No difference in gait or ability to use arms. 7. Intermittent joint pain. On physical examination the patient had drooping eyelids and weakness of the pelvic girdle, but the examination was otherwise negative. The dysphagia suggests scleroderma. However, that is the only finding here that suggests that disease. There are no skin changes and there is a negative GI series. Thus, I feel scleroderma is very unlikely. All the other findings suggest muscle disease and the absence of neurologic findings substantiates this possibility.

Extensive inflammatory disease of the muscle, whether acute or chronic results in large daily excretion of creatine and a reduced urinary output of creatinine, similar to that of progressive muscular dystrophy. Unfortunately, we do not have those studies in this case. Serum levels of transaminase are greatly elevated to as high as ten times normal in some cases of muscular inflammation. The aldolase levels are also raised. The creatine phosphokinase levels, however, are elevated and are considered to be a more sensitive index than aldolase in reflecting muscular damage. In denervation atrophy, by contrast, the serum levels of the three enzymes are normal. In progressive muscular dystrophy, the levels of enzymes are increased, but to a lesser degree than in poly-

myositis or in acute myoglobinuric myopathy.

The erythrocyte sedimentation rate is abnormally rapid in most of the acute and chronic cases of polymyositis. Positive latex fixation tests for rheumatoid factor, or other tests for this factor in the serum occur in a significant percentage of cases of polymyositis and dermatomyositis. Unfortunately, we have no information about latex fixation. The joint pains represent an important factor in diagnostic differentiation since there is some suggestion of a possible pathogenic common denominator between polymyositis and rheumatoid arthritis.

Progressive muscular dystrophy in its most well-known forms appears not to have a course similar to this case. The severest form, of course, occurs in childhood. Our patient is 66. However, there have been several obscure forms of muscular dystrophy described in the literature which bear some consideration. There are several classifications of this disease entity, usually based on various clinical observations. They all have in common, degeneration of skeletal muscle with the innervation of the affected muscle remaining intact. There is also a strong familial history which is absent in this case. Some of the clinical forms of muscular dystrophy, mild restricted muscular dystrophy, progressive dystrophic ophthalmoplegia, myotonic dystrophy, and late-life distal muscular dystrophy. There is also a syndrome described by Shy and McEachern as menopausal muscular dystrophy. This is characterized by gradual weakness of extension of the knees, laryngeal and pharyngeal weakness and, in some cases, ptosis. This later form has also been described as a form of chronic polymyositis occurring during the climacterium of late years of life. In conclusion I would narrow my diagnostic choice down to an atypical form of muscular dystrophy or late occurring form of chronic polymyositis. I choose the latter on the basis of the clinical picture of the muscular weakness, ptosis, and elevated serum glutamic oxaloacetic transaminase, creatine phosphokinase, and joint pains.

DR. MICHAEL FERRELL'S DIAGNOSIS

Muscular disease, probably chronic polymyositis.

DR. ROBERT E. THOMPSON (Yankton): What was the diagnostic procedure?

DR. FERRELL: I presume it was a biopsy of skeletal muscle.

DR. H. STREETER SHINING (Rapid City): If there is muscle damage, why was the aldolase low?

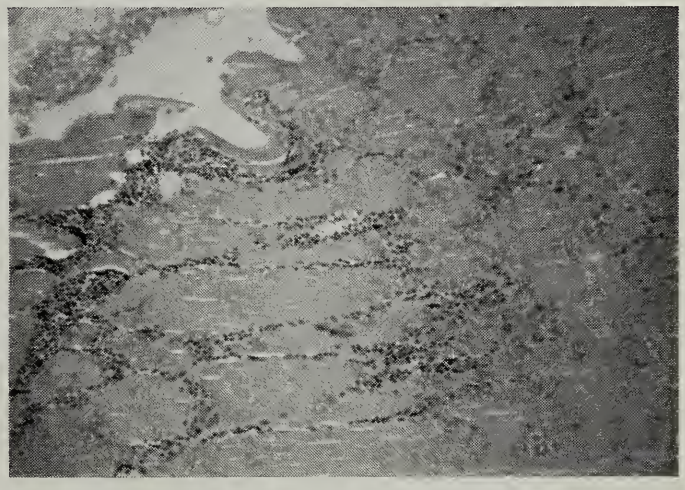
DR. BARLOW: I don't know. The creatine phosphokinase is more indicative of muscle damage, but I cannot explain the normal aldolase in this case.

DR. EVERETT W. SANDERSON (Sioux Falls): Where was the muscle biopsy from?

DR. BARLOW: I believe it was gastrocnemius.

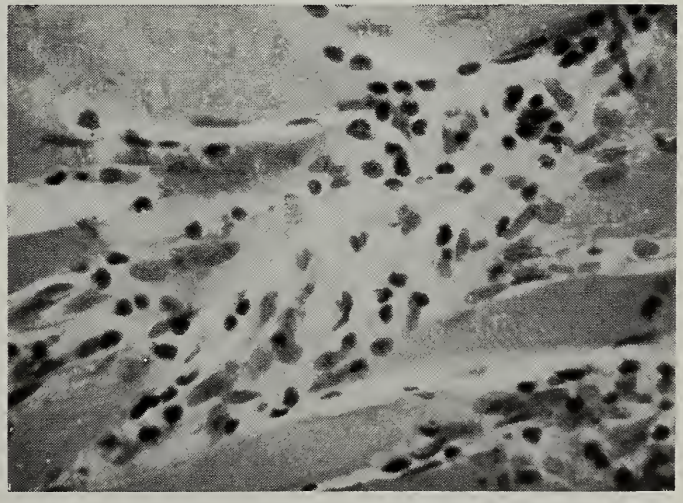
If there are no further questions, I will show the biopsy specimen which was the diagnostic procedure as Dr. Ferrell has indicated. This first photomicrograph shows on this low power, clusters of dark round cells in the muscle interstitium. Higher power projection shows that these are indeed mononuclear cells and are exhibiting phagocytosis and destruction of muscle. (Fig. 1 and 2). This process, therefore, is a chronic myositis. The slide itself could be interpreted as no more than this, but with the

Figure 1



Note clusters of chronic inflammatory cells between muscle fibers (100x).

Figure 2



Higher power showing round cells involving muscle fibers.

clinical picture, I think we can safely make the diagnosis of chronic polymyositis.

In regard to Dr. Sanderson's question, I would like to mention that it is important to select the proper muscle for biopsy. One should always try to select a muscle that is affected by the disease — that is, one that shows weakness. If there is tenderness present in the muscle, I also think this is a good area to select. It is wise to select a muscle that has been recently affected by the process, particularly if there is chronic course. We have had muscle biopsies on very chronic muscle diseases which showed nothing but fatty replacement and, of course, were non-diagnostic. Therefore, I am making a plea that the site of the muscle biopsy be carefully selected by the physician. Also, I would like to mention that the muscle should not be immediately thrust into formalin. We have a special clamp to maintain the muscle in the non-contracted state. The clamp and muscle are then put into fixative and left before sectioning. This is very helpful in order to get proper cross-section and longitudinal sections of the muscle which are necessary in distinguishing between muscular dystrophy and the grouped atrophy of denervation.

I would like to just briefly go over a classification of so-called "polymyositis". Adams and Walton have divided inflammatory reactions of unknown etiology into four categories:

GROUP I - with or without myoglobinuria

This may be acute, subacute, or chronic and may occur in childhood or in adult or middle to late life. In this form, the muscles only are affected.

GROUP II - this is so-called "dermatomyositis"

There is polymyositis with muscular weakness as a dominant feature, but with evidence of associated connective tissue disease such as skin changes. Periorbital edema with violaceous coloration and brauny induration of the extremities may occur.

GROUP III

Polymyositis with severe connective tissue disease such as rheumatoid arthritis, lupus erythematosus, scleroderma, or a combination of these with relatively slight muscle disability and marked changes in other organs, such as joints or skin. The muscle changes are a minor part of the disease.

GROUP IV

Polymyositis or dermatomyositis associated with carcinoma. (Carcinomatous myopathy). This last form of disease is extremely interesting, as the first manifestations of an occult tumor may be polymyositis. The disease association appears to be more common in men than women. However, I think any patient who has the syndrome of polymyositis should be carefully worked up for tumor. It has been noted that when the tumor is resected, the symptoms of polymyositis may abate; and when the tumor recurs, the symptoms of polymyositis recur. In the case today, this patient was carefully worked up subsequently for malignancy and was found to have no tumor. The chronic course of the polymyositis would also be against the presence of malignancy.

DR. THOMPSON: Is this disease just more common or are we diagnosing it more frequently because I have a case and Dr. Johnson, my associate, has a case and I think there is another case presently at our clinic.

DR. BARLOW: I would agree that the disease is not infrequent. We make the diagnosis several times a year from muscle biopsy alone. I feel it is something that should always be thought of, especially since steroid therapy can cause marked improvement in these patients.

FINAL ANATOMIC DIAGNOSIS

Chronic polymyositis.

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SEMINAR ON DEATH AND THE MANAGEMENT OF THE DYING PATIENT

A Seminar on Death and The Management of the Dying Patient will be held in Rapid City, South Dakota, June 9 and 10, 1972. The purpose of this seminar is to direct the attention of the medical, nursing and legal professions, the clergy, and associated health workers to the changing concepts of death in our society, its impact on the practice of medicine, and the medical management of a dying patient and his family.

The seminar is open to members of the medical, legal and nursing professions, clergy and associated health workers from South Dakota and neighboring states.

Further information may be obtained from J. A. Cline, M.D., Box 1590, Rapid City, South Dakota 57701.

SIXTH ARTICLE IN SERIES

PULMONARY ACTINOMYCOSIS

by
S. Sochocky, M.D. F.C.C.P.*

Actinomycosis is a fungus granulomatous disease caused in humans by Actinomyces israeli and in animals by Actinomyces bovis. Actinomyces usually exist as parasites, non-pathogens in mucous membranes of mouth, usually in dental caries, diseased gums and in tonsillar crypts. Under certain circumstances Actinomyces israeli may become pathogenic and produce disease in man characterised by regressions and exacerbations. Actinomycosis is frequently found in cattle and other animals, however, there is no evidence of transmission of disease from animal to man, or man to man. This disease may occur at any age but most frequently between 30 and 40 years; more often in males than females and can affect any race. Actinomycosis occurs in persons of all occupations; it has no predilection for persons living in the country. Greer[1] collected 205 cases from literature and found that 39 per cent were housewives, 27 per cent farmers, 15 per cent students and 6 per cent were unclassified laborers. Putman[2] et al. in 1950, found that of 122 patients seen at the Mayo Clinic, 69 were city residents and 53 rural residents. Actinomycosis is world wide and is the most common of systemic mycoses. In the United States it is most prevalent in the Mississippi Valley, Great Lakes region, and Atlantic and Pacific coasts.

Clinical Manifestations:

The primary infection is prone to occur at the site of injury of overlying mucous membranes. There are four main types of actinomycosis - 1) cervicofacial following infection of oral cavity. 2) pulmonary - usually following aspiration of Actinomyces israeli into lungs causing infection. 3) gastrointestinal - due to swallowing Actinomyces into gastrointestinal tract. 4) disseminated form. Greer[1] found in a series of 580 cases of actinomycosis that 61 per cent were cervicofacial, 31 per cent abdominal and less than 10 per cent pulmonary. According to Greer[1], Cope found the chest and its contents are involved in about 15 per cent of cases.

Cervicofacial form causes pain, swelling of neck with abscess formation with draining sinuses, and may spread in several directions.

Pulmonary actinomycosis in early stages is rather difficult to diagnose because of lack of symptoms and slow progress. However, later it may present itself as a bronchitis with fever, cough, and sputum which may become mucopurulent or blood stained. In this disease, in advanced stages, patient may develop night sweats, shortness of breath, a pain in chest and loss of weight. Also in this stage actinomycosis may invade the pleural cavity and chest wall, causing several sinuses. Physical signs depend on stage of disease — from almost none to signs of bronchitis, impaired percussion note, signs of consolidation, restriction of chest movements, or in some cases pleural effusion.

Actinomycosis of gastrointestinal tract often originates in appendix, transverse colon or in the stomach following perforation of gastric ulcer; subsequently disease spreads by continuity and all tissues of the abdomen may be involved. It causes pain and swelling of abdomen, and sinuses in abdominal wall; signs depend on degree of extension of disease in abdominal cavity. In a study of 122 cases of abdominal actinomycosis in the Mayo Clinic, Putman[2] et al. found that 88 cases followed acute appendi-

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citis, others followed perforated peptic ulcer or diverticulum of colon, and so forth.

Laboratory Findings:

Elevated sedimentation rate, leucocytosis and secondary anemia are commonly present. Actinomyces israeli may be found in sputa or discharge from sinuses as yellow "sulphur granules" and confirmed by direct examination, by staining or cultures.

Radiological Findings:

There are no pathognomonic features of actinomycosis. Chest film may show smooth, irregular shadows, usually without cavity formation. According to authors, shadows are usually in lower lobes and bilaterally; in some cases there may be evidence of pleural effusion. Enlargement of ribs has been found and collapse of vertebral column has been reported.

Diagnosis:

In cervicofacial form, other diseases as eg. glanders, neoplasm or osteomyelitis should be taken into consideration. In abdomen it may simulate almost any other abdominal disorder, as eg. any form of tumor, chronic appendicitis or typhoid fever.

In pulmonary form, any other fungus disease of chest as eg. blastomycosis, histoplasmosis, coccidioidomycosis; pulmonary tuberculosis or carcinoma of the lung should be taken into consideration. In the second case described below carcinoma of the lung was suspected. Patient had right upper lobectomy and subsequent laboratory findings confirmed actinomycosis.

Treatment:

Medical and surgical treatment should be considered. The drug of choice in treatment of actinomycosis is penicillin. The duration, severity, extension and involvement of various structures of the body by actinomycosis should be guidelines in amount and duration of treatment with penicillin. According to some authors penicillin should be given in large doses, between 10 - 20 million units daily for at least 3 months. However, several authors recommend longer treatment lasting up to 12 months, but others recommend penicillin G, up to 5 million units daily, for 4 - 8 weeks.

The other drugs used in treatment of actinomycosis if the patient is allergic to penicillin are tetracycline, streptomycin, erythromycin and sulphonamides. The shorter course of chemotherapy has led to failure of treatment due to the nature of actinomycosis. Manheim[3] et al. reported a case of perirectal actinomycosis which failed to respond to treatment with massive doses of penicillin G sodium, 20 million units intravenously daily for 21 days, but responded to hyperbaric oxygen. Mohr[4] et al. successfully treated actinomycosis with lincomycin in 4 patients allergic to penicillin.

Surgical treatment consists of resection, lobectomy or pneumonectomy and chemotherapy should be given before and after surgery.

Case number 1.

This 52-year-old white male was admitted to the hospital with recurrent abscess of neck for last 2 years. He had intermittent treatment with penicillin with some temporary improvement. However, later patient noticed a progressive weakness, poor appetite and loss of weight.

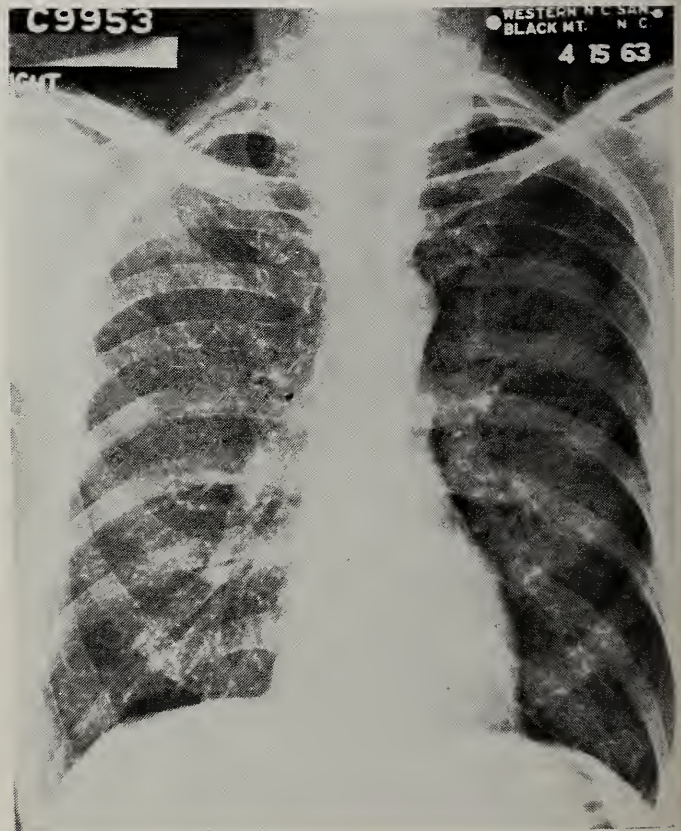
Laboratory data:

Chest X-ray showed a rounded shadow in right upper part (See Figure 1). Bronchial washings obtained on bronchoscopy showed typical "sulphur granules" which later on culture produced Actinomyces israeli. He also had a positive culture for actinomycosis from draining sinus in neck (See Figure 2).

Treatment and Course:

He received 4 million units penicillin daily for 5 months. He improved and was discharged home.

Figure 1



Chest film 4.15.63 shows a round shadow in right upper lobe.

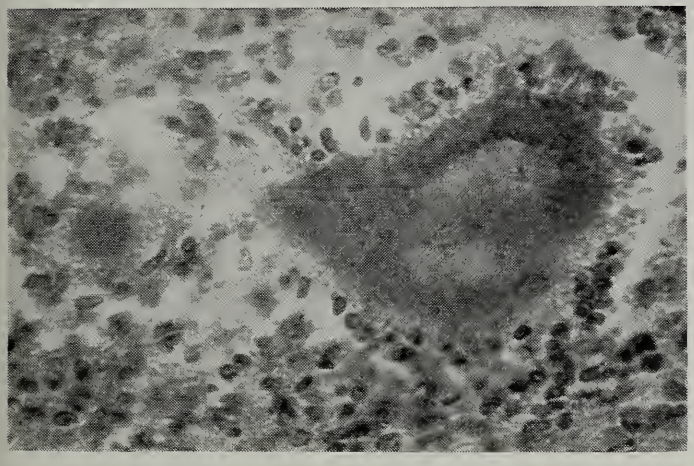
Case number 2.

This 71-year-old white male was admitted to the hospital with a history of productive cough, blood stained sputum, anorexia, general weakness and loss of weight of approximately 5 weeks duration. Physical examination was not remarkable.

Laboratory data:

Several sputa negative on direct smear and culture for acid fast bacilli and no malignant cells were found. Skin test OT 1:000 positive. Bronchoscopy negative. Chest X-ray showed a rounded shadow in right upper lobe (See Figure 3).

Figure 2



Photomicrograph shows colonies of Actinomyces in tissues showing radiating structure and peripheral "club" formation. Magnification x 250 (Hematoxylin-eosin).

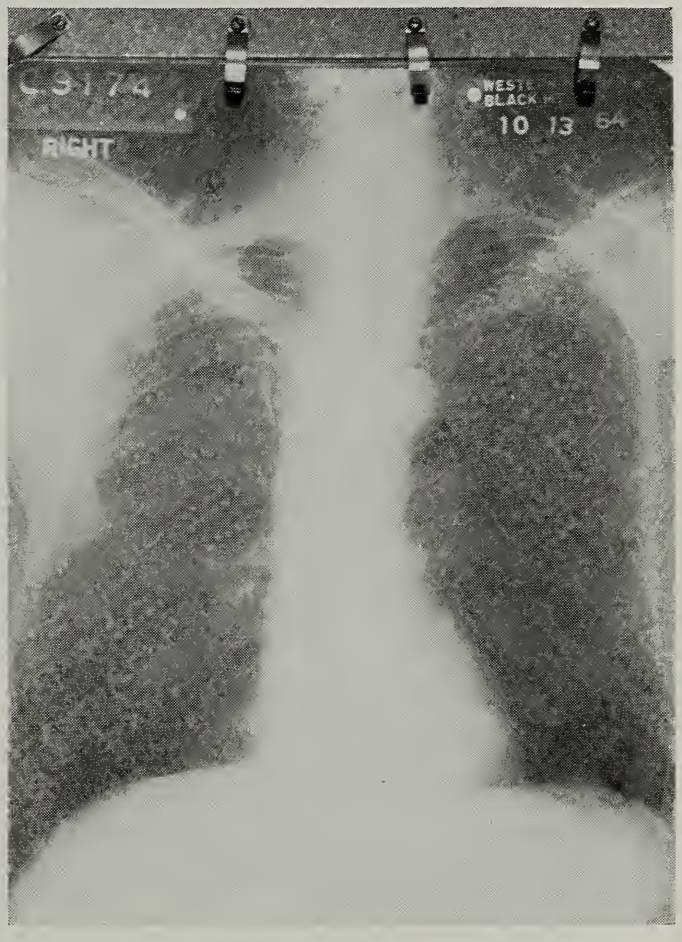
Figure 3

Chest film 4.5.62 shows a round shadow in right upper lobe.

Treatment and Course:

As a carcinoma of the bronchus was suspected he had a right upper lobectomy and subsequent cultures of resected specimen showed actinomycosis. As he was allergic to penicillin he received tetracycline 250 milligrams 4 times daily for 6 weeks following operation. Follow up — Chest film 10.13.64 showed no evidence of any lung disease. (See Figure 4).

Figure 4



Chest film 10.13.64 shows no evidence of any lung disease - follow up.

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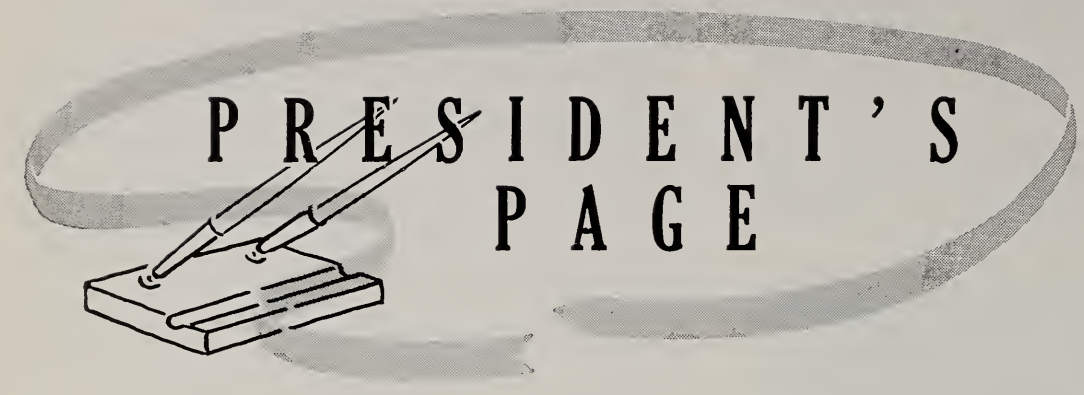

There has been a great deal said and written lately about medical education and medical schools, especially as the subject affects South Dakota and the future of its health care establishment. There have been and no doubt will continue to be conflicting opinions which is all to the good, for only in free and continuing discussion will the best course reveal itself.

South Dakota's need for a well-considered program of medical care and preparation is usually predicated upon the virtual dearth of medical and paramedical manpower in most rural areas and the overall shortage of doctors as well as a serious maldistribution of those we have. These points are extremely valid.

But one element has tended to escape discussion. I believe it to be quite important here.

It is simply that the median age of South Dakota's physicians is rising. As one year merges into the next, the average age of our South Dakota M.D. is increasing. Another way of putting it is that we number more older men and we are not getting the needed influx of young men to balance the scales. In the simplest terms, we aren't getting enough new doctors to compensate for normal attrition.

At the moment this may not present a major hazard. But the disparity is bound to increase as time goes on and nothing effective is done to alleviate it. If permitted to continue, it will not be many years before the situation arrives at a truly critical point.

My belief is that we owe it to ourselves, to those we serve, and to South Dakota to become actively and sincerely interested in the discussions now going on over the future of medical education, especially in light of the situation which I have outlined above. My own opinion is that the closer to home we can keep young men who are preparing for careers in medicine, the more likely they are to remain with us . . . and the sooner will the scales be balanced to the benefit of everyone.

I urge you as individuals, and as members of a state association with a direct and vital interest in the field, to express yourself in this regard and to join in the continuing effort to devise an acceptable medical education situation for South Dakota.

A great deal depends upon it.

G. Robert Bartron, M.D.
President

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Adverse Reactions: *Central Nervous System:* Drowsiness, ataxia, dizziness, slurred speech, headache, vertigo, weakness, paresthesias, impairment of visual accommodation, euphoria, overstimulation, paradoxical excitement, fast EEG activity. *Gastrointestinal:* Nausea, vomiting, diarrhea. *Cardiovascular:* Palpitations, tachycardia, various forms of arrhythmia, transient ECG changes, syncope; also, hypotensive crises (including one fatal case). *Allergic or Idiosyncratic:* Usually after 1-4 doses. Milder reactions: itchy, urticarial, or erythematous maculopapular rash (generalized or confined to groin). Others: leukopenia, acute nonthrombocytopenic purpura, petechiae, ecchymoses, eosinophilia, peripheral edema, adenopathy, fever, fixed drug eruption with cross reaction to carisoprodol, and cross sensitivity between meprobamate/mebutamate and meprobamate/carbromal. More severe, rare hypersensitivity: hyperpyrexia, chills, angioneurotic edema, bronchospasm, oliguria, anuria, anaphylaxis, erythema multiforme, exfoliative dermatitis, stomatitis, proctitis, Stevens-Johnson syndrome; bullous dermatitis (one fatal case after meprobamate plus prednisolone). Stop drug, treat symptomatically (e.g., possible use of epinephrine, antihistamines, and in severe cases corticosteroids). *Hematologic:* Agranulocytosis and aplastic anemia (rarely fatal), but no causal relationship established. Rarely, thrombocytopenic purpura. *Other:* Exacerbation of porphyric symptoms.
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Cranbury, N.J. 08512

THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970: ARE YOU OUT — OR IN AND UNDER?

Mead Bailey, J.D.*
and
John B. Gregg, M.D.

It may come as a shock to the professions, but a host — if not a horde — of regulations is about to descend via the Occupational Safety and Health Act of 1970 (84 Stat. 1590, et sequence, ___USC___).

Last year the Congress of the United States passed the Williams-Steiger Act, designed "to assure safe and healthful working conditions for working men and women; . . ."

It is really quite a simple arrangement. The Act says in Section 5(a) that: "Each employer — (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employee; (2) shall comply with the occupational safety and health standards promulgated under this Act."

And as to each employee Section 5(b) says: "Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct."

Section 6 of the Act lays the ground work for the occupational safety and health standards. The Secretary of Labor is authorized to promulgate occupational safety and health standards plus any existing Federal Standards. As yet these do not seem to have fully materialized. But when they come — breach, caesarean, or normal — physician, take a careful look around your office, the pitfalls are abysmal. The penalties range from nuisance to horrendous.

Under the Act employees or their representative may file a complaint concerning factors which they feel are detrimental to their health in their work environment with the Department of Labor and request an inspection of the situation. The Act provides in Section 11(c) (1); No person shall discharge or in any manner discriminate against any employee because such employee has filed any complaint or instituted or caused to be instituted any proceeding under or related to this Act or has testified or is about to testify in any such proceeding or because of the exercise by such employee on behalf of himself or others of any right afforded by this Act. The Act requires employers to keep records of all occupational injuries and illnesses and to display in a prominent location in the place of employment, a poster which outlines the provisions of the Act, and the rights and obligations of the employees under the Act.

Now recall that Section 5 of the Act refers to the duties of each **employer.** And Section 3 says "the term 'employer' means a person engaged in a business affecting commerce who has employees, . . .". But does a practicing physician sole, or with partners, or in a service corporation come under this Act? On first thought a physician may appear to be engaged in a profession rather than a business and would not affect commerce. The answer appears indicated in Section 3 of the Act — the definitions. The Act defines: "The term 'commerce' means trade, traffic, commerce, transportation,

*Mr. Bailey was in the general practice of law in Sioux Falls, S.D. from 1947 to 1970 when he became Vice-President - Legal of a major transportation company headquartered in Sioux Falls.

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or communication among the several states or between the state and any place outside thereof, or within the District of Columbia, or a possession of the United States (other than the Trust Territory of the Pacific Islands), or between points in the same state but through a point outside thereof."

We doubt if the Act appreciates or distinguishes the fine line between profession and business — if there really is any such distinction in today's economic market.

While we can conceive of certain medical practitioners falling outside the scope of this law, it occurs to us that the great majority are subject to it. It all boils down to how close you get to commerce: Do your patients come from another state. Are prescriptions or written communications mailed across state lines. Are you paid in full or in part and directly or indirectly by any federal monies. Do you examine for insurance companies, railroads, trucking companies, airlines or the personnel thereof or persons associated therewith. Do you travel across state lines for practice or practice in a hospital which is a recipient of federal funds directly or indirectly.

Returning to Section 5 — the duties of an employer — is your office free from "recognized hazards" (whatever these are going to turn out to be) that are causing or are likely to cause death or serious physical harm?

The language obviously has built in gradations. Death is definite, but "serious physical harm" appears to have all sorts of gradations. Physical harm, of course, seems rather definite. But does it include psychological or mental aberration because of trauma? To what "danger" is a pregnant surgical nurse exposed?

Your duties as an employer — or as an employee, if such is your case — require compliance with the occupational safety and health **standards.**

Section 17 of the Act describes the penalties. They may be **civil** penalties of not to exceed $10,000 for each violation, or **criminal** fines of not to exceed $20,000 or imprisonment of not more than one year, or both. The distinction between what is **civil** and what is **criminal** is somewhat obscure. It may rest in the discretion of some administrator. We anticipate court litigation for the solution.

A moment of brief meditation should convince the average physician that he may have been placed into a situation of multiple involvement by the provisions of the Act. Not only is he responsible for the working conditions of his own employees but also he undoubtedly will be concerned with treatment of patients who are involved with the Act, as an expert on disputes over health matters or in the advancement of health-safety programs for other employers in the community. Because occupational hazards are so many and so diverse this has the potential of being a multiheaded burden — perhaps a monster — to the practicing physician, especially if he is located in a place having much industry.

A specific aspect covered by the Act which undoubtedly will affect many South Dakota employers, employees, and physicians is acoustic trauma. In an agricultural community the acoustic trauma of farm machinery is usually accepted by the farmer. But it is one of the commonest sources of sensori-neural (inner ear or nerve) type hearing loss. This is usually manifest as a notch in the 4,000 c/s tone range and may progress to involve lower tones if there is prolonged exposure to noise without protection of the ears. Based upon the criteria developed under the Walsh-Healy Act Regulations (Sec. 50-204.10) it is stated: "Protection against the effects of noise exposure shall be provided when sound levels exceed those shown in Table I of this section when measured on the A scale of a standard sound level meter at slow response:

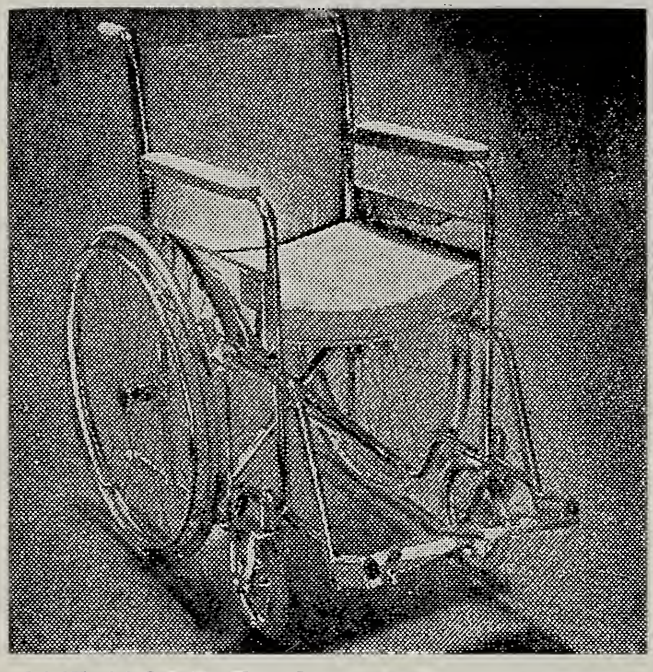
"TABLE I
"Permissable Noise Exposures

"Duration per day, hours	Sound Level dBA slow response
8	90
6	92
4	95
3	97
2	100
1-½	102
1	105
½	110
¼ or less	115"

When it is recognized that many agricultural tractors and equipment utilized on the average South Dakota farm and ranch emit sound pressure levels of 90 - 110 decibels (dB), or more, it is immediately apparent that use without proper protection could be in violation of the Act. Whether or not a farmer or a rancher falls under the Act is a matter outside the scope of this paper. But we alert the agricul-

tural community to the potential ramifications of the Act — and its penalties. The employee of a farmer or rancher potentially appears to have a new status.

Most industries in South Dakota will undoubtedly be involved with the Occupational Safety and Health Act of 1970. These employers must increase their vigilance in detecting and circumventing problems which may cause dangerous or unhealthy working conditions. Undoubtedly physicians will be called upon as consultants in many instances. For this reason they will have to maintain current knowledge in the field of industrial health, problems in occupational toxicity, and other situations wherein employees' health may be adversely affected by factors found in their employment. This along with attention to their own affairs. The adage — Physician, Heal Thyself — is apt.



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Pre-Sate®
(chlorphentermine HCl)

CAUTION: Federal law prohibits dispensing without prescription.

Indications: Pre-Sate (chlorphentermine hydrochloride) is indicated in exogenous obesity, as a short term (*i.e.*, several weeks) adjunct in a regimen of weight reduction based upon caloric restriction.

Contraindications: Glaucoma, hyperthyroidism, pheochromocytoma, hypersensitivity to sympathomimetic amines, and agitated states. Pre-Sate (chlorphentermine hydrochloride) is also contraindicated in patients with a history of drug abuse or symptomatic cardiovascular disease of the following types: advanced arteriosclerosis, severe coronary artery disease, moderate to severe hypertension, or cardiac conduction abnormalities with danger of arrhythmias. The drug is also contraindicated during or within 14 days following administration of monamine oxidase inhibitors, since hypertensive crises may result.

Warnings: When weight loss is unsatisfactory the recommended dosage should not be increased in an attempt to obtain increased anorexigenic effect; discontinue the drug. Tolerance to the anorectic effect may develop. Drowsiness or stimulation may occur and may impair ability to engage in potentially hazardous activities such as operating machinery, driving a motor vehicle, or performing tasks requiring precision work or critical judgment. Therefore, such patients should be cautioned accordingly. Caution must be exercised if Pre-Sate (chlorphentermine hydrochloride) is used concomitantly with other central nervous system stimulants. There have been reports of pulmonary hypertension in patients who received related drugs.

Drug Dependence: Drugs of this type have a potential for abuse. Patients have been known to increase the intake of drugs of this type to many times the dosages recommended. In long-term controlled studies with high dosages of Pre-Sate, abrupt cessation did not result in symptoms of withdrawal.

Usage In Pregnancy: The safety of Pre-Sate (chlorphentermine hydrochloride) in human pregnancy has not yet been clearly established. The use of anorectic agents by women who are or who may become pregnant, and especially those in the first trimester of pregnancy, requires that the potential benefit be weighed against the possible hazard to mother and child. Use of the drug during lactation is not recommended. Mammalian reproductive and teratogenic studies with high multiples of the human dose have been negative.

Usage In Children: Not recommended for use in children under 12 years of age.

Precautions: In patients with diabetes mellitus there may be alteration of insulin requirements due to dietary restrictions and weight loss. Pre-Sate (chlorphentermine hydrochloride) should be used with caution when obesity complicates the management of patients with mild to moderate cardiovascular disease or diabetes mellitus, and only when dietary restriction alone has been unsuccessful in achieving desired weight reduction. In prescribing this drug for obese patients in whom it is undesirable to introduce CNS stimulation or pressor effect, the physician should be alert to the individual who may be overly sensitive to this drug. Psychologic disturbances have been reported in patients who concomitantly receive an anorexic agent and a restrictive dietary regimen.

Adverse Reactions: Central Nervous System: When CNS side effects occur, they are most often manifested as drowsiness or sedation or overstimulation and restlessness. Insomnia, dizziness, headache, euphoria, dysphoria, and tremor may also occur. Psychotic episodes, although rare, have been noted even at recommended doses. **Cardiovascular:** tachycardia, palpitation, elevation of blood pressure. **Gastrointestinal:** nausea and vomiting, diarrhea, unpleasant taste, constipation. **Endocrine:** changes in libido, impotence. **Autonomic:** dryness of mouth, sweating, mydriasis. **Allergic:** urticaria. **Genitourinary:** diuresis and, rarely, difficulty in initiating micturition. **Others:** Paresthesias, sural spasms.

Dosage and Administration: The recommended adult daily dose of Pre-Sate (chlorphentermine hydrochloride) is one tablet (equivalent to 65 mg chlorphentermine base) taken after the first meal of the day. Use in children under 12 not recommended.

Overdosage: Manifestations: Restlessness, confusion, assaultiveness, hallucinations, panic states, and hyperpyrexia may be manifestations of acute intoxication with anorectic agents. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension, or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Fatal poisoning usually terminates in convulsions and coma.

Management: Management of acute intoxication with sympathomimetic amines is largely symptomatic and supportive and often includes sedation with a barbiturate. If hypertension is marked, the use of a nitrate or rapidly acting alpha-receptor blocking agent should be considered. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendations in this regard.

How Supplied: Each Pre-Sate (chlorphentermine hydrochloride) tablet contains the equivalent of 65 mg chlorphentermine base; bottles of 100 and 1000 tablets.

Full information available on request.

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S.D.S.M.A.

Auxiliary News

Perhaps the doctors in South Dakota are not aware of the projects and work done by the Auxiliary. We appreciate this space in your journal to tell of things we are doing for medicine. Through our efforts of fund-raising for medical education, recruiting students for careers in the paramedical field, being involved in legislation, working for mental health, international health and for better community health, we are assisting the medical profession.

Last year our 338 members raised **$3,817.89** for the American Medical Association Education and Research Foundation **(AMA-ERF).** In 1969-70 we contributed **$2,689.68** and the year previous **$2,263.55.** Because we so designate, all this money was returned to the Medical School at Vermillion.

The Auxiliary has been concerned about the acute health manpower shortage. Future Nurse and Health Career Clubs have been organized in the larger high schools to stimulate interest and encourage students to enter training in some paramedical field. We provide speakers, films, hospital tours and offer scholarships. The pamphlet **"Medical Careers in South Dakota"** prepared by your association was placed in many school libraries and given to counselors.

A total of **$10,000** has been granted in loans from our Health Careers Loan Fund since September 1970 to students training in hospitals, colleges and vocational schools in the state. This rotating loan fund (formerly the Benevolent Fund) is a joint fund of the auxiliary and the medical association. Only $5,000 can be used each year and the maximum loan is $500 per student.

Legislation is an important part of auxiliary work. Members are kept informed on both state and national proposals concerned with medicine and health care. **Mrs. C. Rodney Stoltz,** our past national president, is a member of the AMA Speakers Bureau with a special assignment — MEDICREDIT. She has spoken extensively within the state and also across the nation.

These projects have been our top priority the last few years but many auxiliary members are involved in activities concerned with Mental Health, International Health and Community Service. Perhaps we can tell you about these in another issue.

Medical Student News

From

The University of South Dakota

With the consent and aid of the faculty and administration, the students at the School of Medicine in Vermillion have become productively involved with their own education over the past year. This involvement has taken the form of two student-organized, student-sponsored seminars dealing with medically related social problems.

On December 3rd and 4th of last year, a rather informal dialogue took place between physicians, medical and nursing students, and clergy in the medical school auditorium. The subjects of discussion were the concept of death, and the management of both the terminal patient and his family. As the principle speaker, the students invited the Reverend Mr. William L. Voris, Chaplain of the Good Samaritan Hospital in Puyallup, Washington. Mr. Voris and speakers from the clinical faculty were well received, and the seminar was acknowledged as extremely beneficial by all involved.

A more formal symposium resulted on January 27th and 28th, culminating the combined efforts of the Student American Medical Association with the Sioux Empire Drug Education Committee, Inc. The topics under consideration were the illicit use and abuse of the commonly encountered "street drugs" and, in the twenty hours involved, social as well as pharmacological and psychological aspects of drug abuse were discussed. The combined venture of the two organizations permitted organization of a truly high calibre presentation, involving nationally known speakers such as Allan Cohen, which would otherwise have been impossible.

Via these two seminars, the students feel that they have broadened their medical education into fields that would not have been explored in the traditional didactic curriculum, yet which will be of vital concern to them in the practice of medicine.

MINUTES OF THE COUNCIL MEETING

11:30 A.M. Ramada Inn

Saturday, Jan. 8, 1972 Sioux Falls, South Dakota

The meeting was called to order by Dr. Leigh, Chairman of the Council. Those present for roll call included Doctors Bartron, Taylor, Sattler, Reding, Quinn, Stransky, Leigh, Muggly, Tracy, Lushbough, Swanson, Lewis, Begley, Reaney, Cosand, Ryan and Bell. Also in attendance were Commission Chairmen, Doctors Gregg and Heinrichs, and Mr. Tom Edwards, student representative, Dr. Henry Parrish, Vice President in Charge of Health Affairs at the University, and Mr. Dick Auld and Mr. Bob Doescher from Broeker Hendrickson & Company.

Dr. Reding moved to dispense with the reading of the minutes of the previous meeting inasmuch as they have been published in the SOUTH DAKOTA JOURNAL OF MEDICINE. The motion was seconded by Dr. Lewis and carried.

Mr. Dick Auld and Mr. Bob Doescher from Broeker Hendrickson discussed the tax situation regarding the Journal and the Building Funds. Dr. Lushbough moved that effective May 1, 1971, salaries in the following amounts shall be paid to the Executive Secretary and the Administrative Assistant from revenues of the Building Fund for services in conjunction with the management of the Association building, 711 North Lake Avenue, Sioux Falls: the Executive Secretary shall receive $150 per month and the Administrative Assistant $100 per month. Said salaries shall be reduced in a like amount from the General Fund of the Association so that the entire compensation of the Executive Secretary and Administrative Assistant shall be no more than that contained in the 1971-72 budget. The motion was seconded by Dr. Reaney and carried. Dr. Bartron moved that the Association authorize the advance payment of the note presently held by Blue Shield on the building not to exceed $1,500 per month and that the Executive Secretary shall have the option to establish repayment of the loan depending on the revenues of the Building Fund. The motion was seconded by Dr. Muggley and carried.

Dr. Gregg presented the report of the Commission on Legislation and Governmental Relations.

REPORT OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS

Since the last meeting of the Council there has been no formal meeting of this Commission and no pertinent matters have arisen requiring action by this Commission. The Chairman of the Commission with legal counsel is compiling data regarding the Industrial Safety Health Act of 1970 (Williams-Steiger Act) for presentation to the physicians of this state as an article in the Journal of the South Dakota State Medical Association.

Submitted by:
J. B. Gregg, M.D.
Chairman

He reviewed the activities of the Legislature during the first week and announced that an open meeting will be held in Pierre on Wednesday, January 12, concerning the Medical School. He also reviewed the Williams Steiger Act and announced that an editorial will appear in the SOUTH DAKOTA JOURNAL OF MEDICINE within the next two months concerning this. Dr. Cosand moved that the Council accept this report. The motion was seconded by Dr. Bartron and carried.

Dr. Heinrichs presented the report of the Commission on Scientific Medicine. He reviewed the scientific program for the annual meeting. He reviewed the stand of the South Dakota State Department of Health concerning smallpox immunizations whereby vaccinations should not be mandatory or routine, but should be at the discretion of the physician and the patient, and the request of the State Health Department that they and the State Medical Association issue a joint news release to this effect. Dr. Lushbough moved that the Association support the discontinuance of mandatory smallpox vaccination and leave it to the discretion of the physician and that the Association lend its support to the proposed joint news release. The motion was seconded by Dr. Sattler and carried. Vote: 15 - for; 2 - opposed. The proposed change in the law concerning smallpox immunizations was referred to the Commission on Legislation and Governmental Relations for study.

Dr. Heinrichs reported on the proposed changes in TB control in South Dakota and the use of TB centers in the state. He stated that the Commission will hold a conference call on Monday, January 10, concerning these proposed changes and will then report to the Council at its next meeting. Dr. Lewis moved that the Council accept this report. The motion was seconded by Dr. Tracy and carried.

Mr. Erickson reported on the malpractice survey for the Council's information.

MALPRACTICE INSURANCE SURVEY

1. 443 surveys were sent. 197 were returned completed correctly which establishes a 45 percent return. 12 surveys were returned without the name of the insuring company, and those were not included in our total.

The following is a breakdown of companies insuring physicians in South Dakota:

St. Paul Fire Marine	100 physicians	51%
Western Casualty & Surety	34	17
U.S. F & G	26	13
Lloyds of London	9	
Hartford Insurance Co.	7	
Aetna	6	
Other	15	
Total	197	

It would appear that based on the survey St. Paul Fire Marine covers approximately 51 percent of the physicians in South Dakota which is somewhat less than the 90 percent figure established somewhat earlier.

Average basic premium paid in 1971	$670
Average basic premium paid in 1968	$330

Of the 197 surveys received 9 indicated they had been involved in a malpractice case in the last five years. The following shows the disposition of those cases:

No awards	2 cases
Not settled	2 cases
Settled in court	1 case for $22,000
Settled out of court	4 cases for $25,400

Dr. Quinn moved that the Association petition the Insurance Commissioner to obtain information on malpractice insurance in South Dakota. The motion was seconded by Dr. Swanson. Dr. Cosand moved to amend the motion to include requesting information from the Insurance Commissioner on malpractice coverage and companies in South Dakota and request a complete list and number of cases for which claims have been made and settled or not settled and pending claims in the past five years. The motion was seconded by Dr. Lewis and the amendment carried. A vote was taken on the original motion and this carried. Dr. Swanson moved that the Council request the Association Attorney to research malpractice cases filed in South Dakota and submit any information to the Association office. This motion was seconded by Dr. Lewis and carried.

The Council considered the days of follow up care as set forth in the Relative Value Study. Dr. Cosand moved to amend the Relative Value Study so that any procedure listed in the Relative Value Study showing more than sixty days follow-up care will automatically be changed to allow a maximum of sixty days care

and those procedures listing less than sixty days shall remain the same. Such sixty days shall commence on the day following the date of the operation and no charge shall be made to patients for follow-up services rendered in connection with such procedure until the listed number of days or the maximum of sixty days has elapsed. The motion was seconded by Dr. Stransky. Dr. Reaney moved that the motion be amended and include that procedures of fifteen units or less should not include any follow-up care. The motion was seconded by Dr. Lushbough and the amendment carried. A vote was taken on the original motion and this carried.

Dr. Leigh reviewed the letter from the Department of Health, Education and Welfare concerning possible changes in procedural coding and terminology. Dr. Lewis moved that a Committee be formed under the Commission on Medical Service to study coding terminology and keep up to date on proposed changes. The motion was seconded by Dr. Tracy and carried.

Mr. Erickson reported that per the Council's previous request concerning occupancy rates in South Dakota hospitals, he contacted the State Hospital Association, but they were unable to provide the requested information.

Dr. Muggly briefly reported on his trip to the Florida Foundation and their work in peer review. He also reported on the activities of the Hennepin County Foundation for the Council's information.

Mr. Erickson reported on the meeting with the South Dakota High School Activities Association and stated that a written report by Dr. Amundson had been sent to the physicians in South Dakota along with AMA booklets on sports injuries.

The Council considered the nominations for the Distinguished Service Award. A secret ballot was cast and the recipient will be announced at the annual meeting banquet.

The Council considered the nominations for the Community Service Award. A secret ballot was cast and the recipient will be announced at the annual meeting banquet.

The Council considered the appointment of the Board of Directors of the South Dakota Medical School Endowment Association for a one year term. Dr. Swanson moved to reappoint the current Board including: Doctors Warren Jones, F. R. Williams, G. E. Tracy, B. O. Lindbloom, C. R. Herbrandson, E. H. Peters and T. H. Willcockson. The motion was seconded by Dr. Lushbough and carried.

Mr. Erickson discussed the annual meeting banquet and proposed entertainment. The Council directed the executive office to contact the Green County Entertainers from Springfield, Missouri, and request that they provide the entertainment for the banquet.

Mr. Erickson discussed the possibility of holding a "rap" session at the April Council meeting. Dr. Bartron moved that the next Council meeting start at 9:00 a.m. The motion was seconded by Dr. Reding and carried.

Mark F. Williams, M.D.; Frank Tobin, M.D.; and J. Harold Lloyd, M.D. were nominated for honorary membership in the State Medical Association. Dr. Lewis moved that Doctors M. F. Williams, Frank Tobin and J. H. Lloyd be named honorary members of the South Dakota State Medical Association. The motion was seconded by Dr. Sattler and carried.

The Council considered the proposal to offer Blue Shield Plan 4 to the physician members and their employees. Dr. Taylor moved that the Association offer Blue Shield Plan 4 to physician members and their employees. The motion was seconded by Dr. Cosand and carried.

Dr. Quinn reported on the meeting of the Liaison Committee to the Welfare Department held on Friday evening, January 7, for the Council's information.

The Council reviewed the report of the Budget and Audit Committee and the proposed budget for 1972-73.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION

INCOME

ITEM	BUDGETED 1971-72	PROPOSED 1972-73
State Dues	$60,000.00	$57,000.00
Annual Meeting	7,500.00	9,500.00
Refunds & Misc.	1,000.00	1,000.00
Interest	100.00	100.00
Car Reimbursement	1,400.00	1,400.00
Income Reimbursement	1,140.00	1,140.00
	$71,140.00	$70,140.00

EXPENSES

ITEM	BUDGETED 1971-72	PROPOSED 1972-73
Salary, Executive	$ 8,400.00	$ 6,600.00
Salary, Other	16,500.00	15,600.00
Social Security	1,100.00	1,050.00
Legal & Audit	3,500.00	3,500.00
Telephone	3,500.00	3,500.00
Office Supplies	2,500.00	2,500.00
Dues & Subscriptions	900.00	900.00
Physician Travel	3,500.00	4,000.00
Annual Meeting	8,000.00	8,000.00
Public Relations	5,000.00	4,500.00
Rent	3,000.00	3,000.00
Miscellaneous	100.00	100.00
Postage	2,500.00	3,000.00
Legislative Expense	1,800.00	2,300.00
Medical School End.	200.00	200.00
Car Expense	2,500.00	2,500.00
Clinical Pathology	200.00	200.00
Staff Travel	5,000.00	4,500.00
Insurance	100.00	125.00
Employment Tax	50.00	50.00
Employee Relations	2,200.00	2,200.00
Taxes	200.00	200.00
Auxiliary Newsletter	700.00	700.00
	$69,950.00	$69,225.00
Reserve	1,190.00	1,915.00
	$71,140.00	$70,140.00

BUILDING FUND

INCOME

ITEM	BUDGETED 1971-72	PROPOSED 1972-73
Blue Shield Rent	$38,400.00	$34,560.00
Association Rent	3,000.00	3,000.00
Journal Rent	600.00	600.00
Board of Exam. Rent	600.00	600.00
	$42,600.00	$38,760.00

EXPENSES

ITEM	BUDGETED 1971-72	PROPOSED 1972-73
Janitor, Repair & Improvements	$ 9,000.00	$ 4,000.00
Utilities	6,000.00	6,000.00
Interest	6,000.00	4,400.00
Repayment of Loans	11,000.00	11,900.00
Salary - Janitor & building mgmt.		6,000.00
Legal & Audit	800.00	700.00
Taxes & Insurance	6,000.00	5,600.00
	$38,800.00	$38,600.00
Reserve	3,800.00	160.00
	$42,600.00	$38,760.00

JOURNAL OF MEDICINE

INCOME

ITEM	BUDGETED 1971-72	PROPOSED 1972-73
Advertising	$20,000.00	$18,000.00
Subscriptions	400.00	500.00
Miscellaneous	600.00	600.00
Refunds	800.00	800.00
	$21,800.00	$19,900.00

EXPENSES

ITEM	BUDGETED 1971-72	PROPOSED 1972-73
Salary, Editor	$ 720.00	$ 720.00
Salary, Staff	3,900.00	4,320.00
Legal & Audit	100.00	100.00
Rent	600.00	600.00
Telephone	300.00	150.00
Social Security	100.00	100.00
Printing & Office Supplies	15,280.00	13,160.00
Postage	800.00	750.00
	$21,800.00	$19,900.00

Dr. Cosand moved that the Council accept the budget as proposed. The motion was seconded by Dr. Lewis and carried.

Dr. Parrish reported on medical education developments and the proposed three year medical school in South Dakota. He explained the findings and recommendations of the Governor's Task Force on Medical Education for the Council's information. He announced that a Search Committee has been named to find a Dean for the Medical School to replace Dr. George Knabe who resigned effective December 31, 1971. Dr. Muggly moved that the Association endorse the budget for the Medical School including an additional $500,000 which would increase it to $1,360,585. The motion was seconded by Dr. Lushbough and carried. Dr. Sattler moved that the Association request the American Academy of General Practice to make a feasibility study and aid and encourage hospitals in developing family practice residencies. The motion was seconded by Dr. Taylor and carried.

Dr. Quinn moved that the Council invite Dr. Henry Parrish as Vice President in Charge of Health Affairs at the University, and Dr. Robert Hayes as State Health Officer to attend all Council meetings. The motion was seconded by Dr. Lewis and carried.

Dr. Quinn discussed obtaining instructions for the AMA Delegate and Alternate Delegate prior to attending the AMA meeting. Dr. Bartron moved that a special Council meeting be called at such time after the AMA handbooks are received to be devoted to review of the resolutions for the ensuing meeting of the AMA as called by the Chairman of the Council and that members of the Council be encouraged to bring additional Association members to this meeting. The motion was seconded by Dr. Reding and carried.

The Council considered the letter from Dr. Russell Harris concerning an Association program to inform the people of South Dakota about the physicians' position concerning national health insurance. Dr. Lushbough moved that the executive office order supplies of the booklets, MEDICAL & HEALTH CARE FOR ALL, CURRENT NATIONAL HEALTH INSURANCE PROPOSALS, and WHERE DO WE STAND? for distribution to physicians' offices so they may distribute them to their patients. The motion was seconded by Dr. Sattler and carried.

Dr. Tracy moved that the Association commend Mr. Jim Huy for his work in TB control. The motion was seconded by Dr. Muggly and carried.

Dr. Begley moved that the Association commend Dr. George Knabe for his tenure as Dean of the Medical School. The motion was seconded by Dr. Stransky and carried.

The meeting adjourned at 5:00 p.m.

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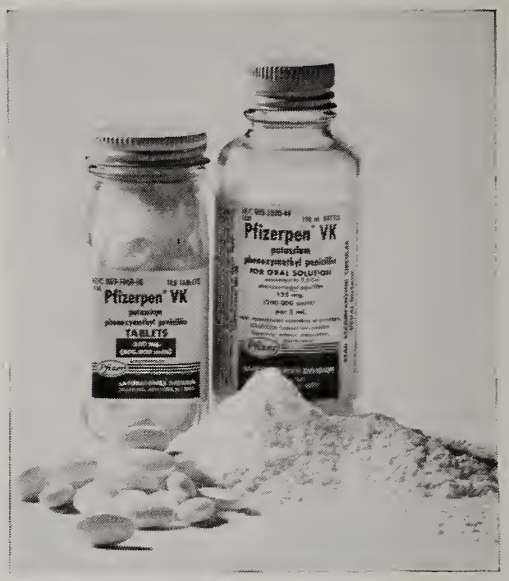

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News Notes • Changes • Births • News

New officers for the Aberdeen District Medical Society for 1972 are **K. H. Kosse, M.D.**, Aberdeen, president; **Alfred Shousha, M.D.**, Britton, vice president; and **J. R. Chavier, M.D.**, Aberdeen, secretary-treasurer.

* * *

Edward J. Batt, M.D., Sisseton, received the Outstanding Service Award from the Sisseton Jaycees for his unending service to the people of the community and area. Dr. Batt was also named recipient of the Boss of the Year award which was presented at the Jaycee Distinguished Service Awards Banquet.

* * *

B. O. Lindbloom, M.D., Pierre, has been elected president of the Pierre District Medical Society; **R. J. Zakahi, M.D.** is vice president and **J. T. Cowan, M.D.** is secretary-treasurer.

* * *

A. A. Lampert, M.D., Rapid City, has been appointed Chairman of the American Medical Association Council on Legislation.

* * *

G. Robert Bartron, M.D., president of the State Medical Association, made his official visitation to the Pierre District Medical Society on January 4 and to the Northwest District Medical Society on January 5. Dr. Bartron discussed medical education in South Dakota.

Watertown District officers for 1972 include **Jose Michieli, M.D.**, president; **James Rud, M.D.**, vice president; and **T. J. Wrage, Jr., M.D.**, secretary-treasurer.

* * *

The Huron Rotary Club heard **C. C. Lardinois, M.D.**, Huron, speak on automated and computerized preventive medicine and St. John's Hospital Center's low cost capability in machine chemical analysis of blood, urinary and spinal fluids.

* * *

G. Robert Bartron, M.D., President of the South Dakota State Medical Association, addressed the members of the Watertown District Medical Society on February 1st and the Aberdeen Medical Society on February 2nd. He discussed medical education and the possibility of a degree-granting medical school for South Dakota.

Also in attendance at the February 2nd meeting in Watertown was **Henry M. Parrish, M.D.**, of the University of South Dakota Medical School.

* * *

New officers of the Huron District Medical Society are: **C. F. Gryte, M.D.**, President; **L. W. Karlen, M.D.**, Vice President; **E. A. Hofer, M.D.**, Secretary Treasurer.

* * *

Three students at the University of South Dakota School of Medicine are active in the direction of the Medical Education Community Orientation (MECO) program, which is designed to allow medical students to see and participate in the life of a doctor before graduation.

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John Cullen is the South Dakota director; Tom Lawrence is the Montana-Wyoming director; and Anita Robinson is the Idaho director.

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The registration fee is $65.00 and registration is limited to 150. For further information, contact A. B. Hayles, M.D., Mayo Clinic, Rochester, Minnesota 55901.

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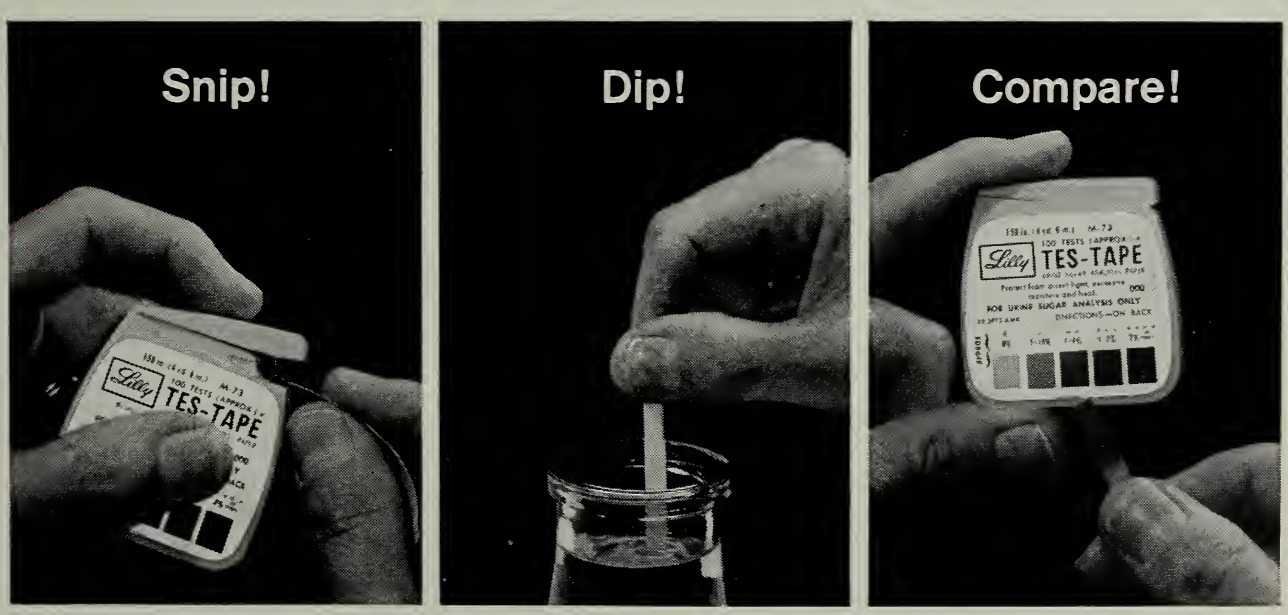

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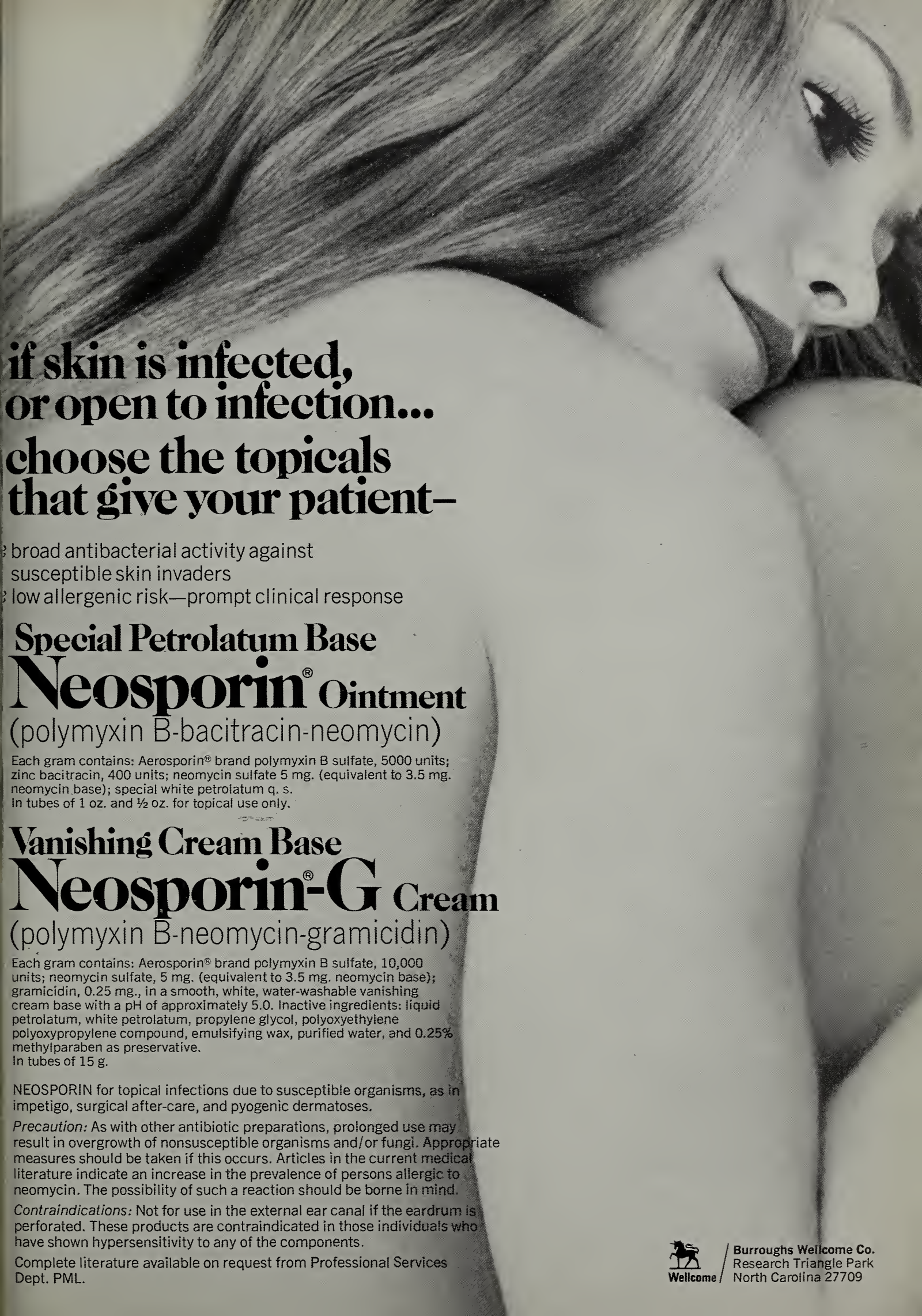

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II. SIGNIFICANT COMPLICATIONS AMONG OBSTETRIC PATIENTS

(Recognition and treatment of maternal complications. Associated perinatal mortality rates. Toxemia associated with obesity. Prematurity not associated with maternal urinary infections.)

Brooks Ranney, M.D.*

I. INTRODUCTION:

Significant complications which occurred among 5,482 obstetric patients and their babies have been studied. These patients were derived from all social and economic backgrounds; they were treated as private patients by the author. Some obstetric patients who had been referred for special care during complications also were included.

In the first article of this series[1] it was noted that significant complications were common in all obstetric patients; only 476 had no significant complications; most patients had 2, 3, 4, or more complications during pregnancy, labor, delivery, or post-partum. Among the 5,482 patients who were studied, 31% had a complication which was considered to be **severe,** which was thought to be due to the pregnancy, and which occurred sometime during the pregnancy, labor, delivery, or postpartum interval. Therefore, pregnancy must be considered to be a time for complications!

Complications were initially noted, most often, during the first prenatal visit, during the third trimester, and during labor and delivery.

During prenatal examinations, identification of early evidence of complications, and classification of specific patients into "high risk" categories, should help in choosing those patients who should be referred early, rather than later, for care of special obstetric complications.

Babies born to mothers who received no prenatal care had five times higher pre-maturity rates, and ten times higher perinatal mortality rates, than did babies born to mothers who received thorough prenatal care from an experienced doctor. Even incomplete prenatal care was somewhat helpful. However, perinatal mortality rates were very high for babies born to mothers who were referred for special, emergency obstetric care, only after severe complications developed. The time interval required to transport these acutely ill obstetric patients for special care, after severe emergencies had developed (rather than before) cost a number of infant lives and much maternal morbidity.

It is worth noting that the overall perinatal mortality rate of babies born to the 3,931 mothers who received thorough prenatal care (during the years 1949 through 1970) was only 16.5 per thousand. If one subtracts the congenital anomalies which were incompatible with life from this group, the resulting net perinatal mortality was only 12.7 per thousand.

*Department of Obstetrics and Gynecology, The University of South Dakota School of Medicine, The Yankton Clinic, 400 Park Avenue, Yankton, South Dakota.

Presented at the District VI meeting of the American College of Obstetricians and Gynecologists, Madison, Wisconsin, October 1, 1971.

TABLE I

Perinatal Mortality Rates

Group	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Average (all patients)	11.7	13.2	24.9
No prenatal care	67.7	111.8	179.5
Referred for complication during labor or delivery	40.6	70.4	111.0
Prenatal care began during 2nd or 3rd trimester	10.9	8.6	19.5
Prenatal care began during 1st trimester	7.9	8.6	16.5
Full prenatal care--subtracting congenital anomalies which were incompatible with life	7.1	5.6	12.7

Criteria: Fetal deaths figured per 1,000 births
Neonatal deaths figured per 1,000 live births
Perinatal mortality is sum of the two

II: TYPES OF COMPLICATIONS (ASSOCIATED PERINATAL MORTALITY; RELATED OBSERVATIONS)

The punch cards, which were derived from each obstetric record, facilitated correlation between various types of **obstetric complications and associated perinatal mortality.** Fetal death rates were figured per 1,000 births; neonatal death rates, per 1,000 live births. If fetal and/or neonatal deaths occurred among babies born to patients with a given complication, the sum of the two was considered to be the **perinatal mortality rate associated with that specific obstetric complication.** (These rates include all patients—those who received full prenatal care, those who received incomplete prenatal care, those who had no prenatal care, and those who were referred during labor or delivery for emergency obstetric care.)

It was possible to divide certain obstetric complications into two degrees—1) significant, and 2) severe—where such separation might be useful. Likewise, when a significant difference was noted, comparisons were made between the first 11 years (first half) and the second 11 years (second half) of this study interval.

1. Hemorrhage:

Table 2 shows that mothers who threatened to abort, but did not, had progeny with a subsequent perinatal mortality rate which was almost twice the average for all patients (also note Table 1). In some instances, mothers who threatened to abort, subsequently were delivered of babies who had congenital anomalies.

TABLE 2

Abortions (plus)

		Subsequent		
Complications	No.	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Threatened Abortion	299	13.7	27.1	40.8
Completed Abortion	553			
Ectopic Pregnancy	37	(Embryonic Wastage--100%)		
Hydatid Mole	5			
Chorion-epithelioma	2			

However, some of these perinatal deaths were also associated with premature rupture of the membranes, placenta previa, diabetes, etc.

The two chorionepitheliomas (Table 2) originated as actively proliferating hydatid moles. All seven patients with prior placental neoplasm are alive and presently free of disease, although four occurred before chemotherapy was available.

TABLE 3

Hemorrhage Late During Pregnancy

Complication	Severity: Significant No.	Severity: Severe No.	Total No.	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Placenta Previa	49	32	81	49.4	77.9	127.3
Premature Sep. of the Placenta	86	44	130	46.3	79.3	125.6

Placenta previa and premature separation of the placenta are almost equally damaging to the fetus (Table 3). Most of these babies were premature. However, many of these mothers, who are listed as having severe complications, had no prenatal care. Others were referred for treatment, only after acute emergencies had developed. If some of these patients had been subjected to earlier prenatal examination and counseling by an experienced obstetrician, some of these problems would have been anticipated, and treatment started days, hours, or minutes sooner. Then, this perinatal mortality could have been reduced considerably.

Third stage and postpartum hemorrhage was reduced by 35.7% during the second interval of 11 years (Table 4). During the same time, cornual implantation of the placenta[2] was recognized more frequently. During the third stage of labor, such placentas produce a pal-

TABLE 4

Third Stage and Postpartum Hemorrhage

Complication	Interval of Occurrence		Totals
	First 11 years No.	Second 11 years No.	
Third Stage & Postpartum Hemorrhage	70	45	115
Cornual Implantation of Placenta--Manual Removal	85	130	215

pable enlargement of the cornu where they have implanted. They separate poorly, because the thinly stretched, cornual myometrium lacks strength to shear them out. When identified, they were usually removed manually within 10 to 15 minutes after delivery of the baby. This decreased the incidence of inadvertently retained cotyledons, and of postpartum bleeding.

Likewise, a shift away from general and conduction anesthesia, toward paracervical and pudendal anesthesia,[3] may have improved myometrial contractility among patients delivered during the second half of this study. This likewise decreased postpartum bleeding.

2. Toxemia:

Significant manifestations of toxemia were noted in 25.3% of our obstetric patients, but only 9.4% of the patients had severe toxemia (Table 5).

No toxic patient for whom this author has provided full prenatal care has been allowed to develop eclamptic convulsions. However, some developed severe preeclampsia, despite careful treatment. Some very toxic, convulsing patients have been referred to us for emergency care. Statistics from these patients have not been separated, but are included within the two classifications in Table 5.

TABLE 5

Toxemia

Complication	Severity		Total No.	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
	Significant No.	Severe No.				
Preeclampsia	381	134	515	13.4	7.9	21.3
Hypertension-Toxemia	490	384	874	17.2	6.9	24.1

We have tried to differentiate between 1) pure preeclampsia (frequently present in primigravida), and 2) either latent or overt hypertension aggravated by superimposed toxemia (frequently present in grand multipara). Table 5 shows that (under our management) the hypertension-toxemia patients produce a higher fetal death rate than do the preeclamptic patients. However, the fetal death rate for all toxic patients is about twice the fetal death rate noted for non-toxic patients who have total prenatal care (Table 1). If the majority of these toxic patients had had no prenatal care, or incomplete prenatal care, then perinatal mortality rates of their babies would have been considerably higher.

Contrary to recent teachings, we **have noted** an **association between toxemia** and **obesity** (35 pounds or more overweight), or **excessive weight gain** during pregnancy (35 pounds or more).

TABLE 6

I. Obesity and Toxemia During Pregnancy

Classification	Patients Delivered		Toxic Patients	
	No.	% of Group	No.	% of Group
"Obese" (35 lbs.)	537	11.5	382	27.5
"Not Obese"	4,148	88.5	1,007	72.5
Totals	4,685		1,389	

Table 6 shows that 11.5% of pregnant patients who were "obese" produced 27.5% of the pregnancy toxemias. If the standard (and preferred) criteria of a 20-pound weight gain during pregnancy had been used, the statistical association would have been much more striking. Likewise, most of the **severe** toxemias occurred in obese patients, or in patients who had gained too rapidly during the pregnancy.

TABLE 7

II. Obesity and Toxemia During Pregnancy

Classification	No.	% of Group
"Obese" (no toxemia noted)	155	28.8
"Obese," plus hypertension--toxemia	306	58.8
"Obese," plus preeclampsia	76	12.4
Total	537	

Table 7 shows that only 28.8% of pregnant patients who were classified as "obese" were **not** toxic. It also shows that a good majority of "obese" pregnant patients had hypertension with superimposed toxemia (which is more dangerous for the fetus).

Many patient records were studied which showed **early** or **moderate** signs of the obesity-

edema-toxemia syndrome. Then, when these patients responded to our prenatal counseling, took their medications, decreased intake of unnecessary calories and excess salt, and rested more, many were observed to lose fat, edema, and hypertension; and some even lost their prior albuminuria. These patients continued through relatively normal pregnancies thereafter with continuing therapy. During subsequent pregnancies these patients usually showed a tendency to become toxic, and usually required special care.

Pregnancy toxemias are similar to weed seedlings in a field of young corn. If recognized early, weeds can be controlled by selective spraying and cultivation. So with toxemia, if the potentialities and manifestations are recognized and controlled during the first and second trimester, then significant third trimester toxemia will be much less frequent and less severe.

3. Infections:

Only 5 instances of severe sepsis occurred among these patients. There was no associated perinatal mortality. If the obstetrician is alert, observes early evidence of infection, and treats patients quickly with adequate doses of proper antibiotics, he seldom sees severe sepsis, though he may frequently see incipient sepsis.

Significant vaginitis noted during pregnancy included monilial, trichomonal, bacterial, and viral. Each was diagnosed microscopically, and treated specifically. Perinatal mortality for this group was less than the overall average, and probably was not related to the vaginitis (Table 8).

TABLE 8
Infections During Pregnancy

Complication	Number	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Sepsis	5	-	-	-
Vaginitis	353	5.6	2.8	8.4

4. Special Groups of Patients:

The most meticulous prenatal care should be provided for two special groups of patients: 1) the unwed mothers, and 2) the infertility patients who have finally achieved first pregnancies.

The unwed mothers are often inexperienced teenage girls whose bodies are not yet mature enough to adapt well to childbearing, and whose young minds need much guidance. Because of very careful prenatal care for most patients in this reported group of unwed mothers, perinatal mortality was no higher than average (Table 9).

TABLE 9
Special Groups

Complication	Number	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Unwed Mothers	91	10.9	11.1	22.0
Prior Infertility	118	-	-	-

The infertility patients may have a wide variety of problems, depending upon respective causes of prior infertility. They are grouped together because of the unusual value placed on this prime pregnancy, and because of the haunting uncertainty concerning future progeny. There were no perinatal deaths among babies born to these patients (Table 9). The abortion rate for these infertility patients was within average limits—less than 10%.

5: Early or Rapid Labor:

Some factors relating to early labor may be measured. Others are not well understood. Several are listed in Table 10.

It is surprising to see both fetal and neonatal death rates high among babies born to mothers who have had prior false labors during this pregnancy. However, some of those false labors may have been manifestations of toxemia, uterine hypertonicity, placental insufficiency, partial placental separation, breech presentation, or other pregnancy complications, all of which could contribute to this increased perinatal mortality rate.

TABLE 10
Early or Rapid Labor

Complication	No.	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Prior False Labor during this pregnancy	103	38.7	30.3	69.0
Cervical Incompetence	54	0	129.6	129.6
Premature Spontaneous Rupture of Membranes	199	20.1	35.3	55.4
Premature Labor	300	26.6	123.6	150.2
Precipitate Labor	214	9.3	9.4	18.7

Incompetence of the cervix[4] caused no fetal deaths. However, even after careful treatment of the mother, both between pregnancies and during pregnancies, the neonatal death rate associated with cervical incompetence is slightly higher than the perinatal death rates associated with either placenta previa or premature separation of the placenta (Table 3). These deaths result from previable labors and deliveries. In some patients, pathologic uterine hypertonicity may also contribute to early labors.

Premature spontaneous rupture of the fetal membranes is one cause of the onset of previable or premature labor. Therefore, the associated elevation in neonatal deaths among these tiny babies is to be expected. Some of these fetal deaths probably were truly caused by placenta previa, prolapsed cord, hemolytic disease, etc.

The extremely high perinatal mortality rate associated with premature labor is accurate, but spurious. A number of these early labors probably were instigated by complications such as breech or transverse presentation, premature spontaneous rupture of the membranes, congenital anomalies of the fetus, multiple pregnancies, placenta previa, toxemia, hemolytic disease, etc. Even so, the remaining premature labors (for unknown reason) probably still would cause a significant rise from average perinatal mortality.

The relatively average perinatal mortality rate associated with precipitate labor is surprising. Long, hard, frequent uterine contractions, with insufficient relaxation between, should damage the fetus. Perhaps the effects are more subtle, causing damage less than death. Probably our arbitrary criteria were too inclusive; we classified any labor completed in less than two hours as a precipitate labor. Very likely there were many less than 214 significantly precipitate labors within this study group.

6. Dystocia:

During the early years of the 1950's, we developed, and reported on a physiologic technique utilizing very dilute, intravenous oxytocin, to treat uterine inertia.[5,6] In the absence of severe disproportion, this careful oxytocin stimulation of inertia labors has been used so effectively that there have been only five prolonged labors (lasting more than 24 hours) since 1957 (Table II). There has been no perinatal mortality associated with these procedures. Since mild brain damage from temporary cerebral hypoxia of the fetus can be caused by strong and frequent uterine contractions, indicated intravenous oxytocin should be very dilute, and should be used with judicious precision by professional personnel who are thoroughly experienced in the variations of the physiology of labor.

TABLE 11
Inertia and Prolonged Labors

Complication	First 11 years	Second 11 years	Totals
Uterine Inertia	426	330	756
Prolonged Labors	47	4	51

Most of the 316 patients with "significant" disproportion had manipulative and forceps deliveries. The 70 patients with "severe" disproportion were delivered by section (Table 12).

Two babies died. An obese, diabetic mother was being delivered of a 12½ lb. baby. Shoulder dystocia hindered delivery. After death of the baby, the attending physician called the obstetrician to complete the delivery.

The second baby died apparently of pulmonary atelectasis, following section for disproportion, utilizing general anesthesia.

After two unfortunate neonatal results utilizing general anesthesia during section, and one, while utilizing conduction anesthesia during section—all during the early 1950's—we have learned to perform most of our cesarean sections under local anesthesia (until the baby is delivered). Most babies are delivered wide awake, breathing air, and crying (just as they would be after vaginal deliveries, using pudental block anesthesia).

TABLE 12
Disproportion

Complication	Severity		Total	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
	Significant No.	Severe No.				
Disproportion	316	70	386	2.6	2.6	5.2
Occiput post.	78	79	157	-	-	-
Deep Transverse Arrest	20	5	25	-	-	-
Face	6	4	10	-	-	-

TABLE 13

Abnormal Presentation

Complication	External Vers. Before Delivery	Breech or Trans. at Time of Deliv.		Fetal Death Rate	Neo-natal Death Rate	Perinatal Mortality Rate
		1st 11 yrs.	2nd 11 yrs.			
Breech	643	44	24	14.7	14.8	29.5
Transverse	258	9	3	83.3	-	83.3
Compound	-	-	2	-	-	-

Most babies with occiput posterior position of the fetal head were treated by manual rotation; a few, by forceps rotation. Babies whose heads were in deep transverse arrest were usually delivered with Barton or Kielland forceps, depending upon the conformation of the pelvis. Seven face presentations were manipulated to vertex prior to rupture of the fetal membranes; three were delivered by section.

During prenatal visits for the past 15 years, we have attempted external version of single breech and transverse presentations to vertex, whenever feasible, so long as fetal membranes were intact. External version demands subtle skills, based on broad obstetric experience. However, as a result, we have only found it necessary to perform four breech deliveries in the past five years. The two babies who died associated with breech presentation, were previable second twins (Table 13).

One woman entered the hospital with ruptured membranes, transverse presentation, prolapsed cord, and the fetus dead in utero. Such tragedies can usually be avoided by external version during prenatal visits.

It is worth noting that at the time of delivery the number of breech presentations was decreased by one-half, and the number of transverse presentations was decreased by two thirds during the second half of this report. This difference would have been greater were it not for the fact that during the second half of this study a number of patients who had prenatal care elsewhere were referred during labor specifically because of breech or transverse presentations.

All except two of the patients listed in Table 14 (soft tissue dystocia) were delivered by section. Two of the patients who had moderate constriction ring dystocia could be delivered vaginally.

TABLE 14

Soft Tissue Dystocia

Complication	First 11 yrs.	Second 11 yrs.	Totals
Constriction Ring	3	5	8
Prior Section Scar	84	79	163
Cervical Fibroid	1	2	3
Carcinoma of Cervix	1	-	1

Among the 163 patients who had prior sections, 35 had had two or more prior sections. Some of these patients, and the four patients with cervical fibroids or carcinoma, were subjected to cesarean-hysterectomy.

7. Abnormalities of the Placenta and Cord:

Table 15 shows high perinatal mortality rates associated with abnormal function of the placenta or cord. With the help of modern detection techniques and indicated treatment, moderate hemolytic disease caused no deaths, but severe hemolytic disease (requiring exchange transfusion) is still very dangerous for babies. Probably these deaths will decrease as more mothers are protected with Rhogam.

TABLE 15

Abnormalities of Placenta and Cord

Complication	Severity: Signif-icant No.	Severity: Se-vere No.	Total	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Hemolytic Disease	23	53	76	92.1	86.9	179.0
Other Placental Abnormalities*			228	39.4	22.8	62.2
Prolapsed Cord	(occult) 24	24	48	83.3	45.5	128.8
Other Cord Abnormalities ‡			231	30.4	8.9	39.3

(* Infarcts, tumors, circumvallate, membranacia, bilobate, etc.)
(‡ Infarcts, tumors, loops, knots, inadequate Wharton's jelly, etc.)

Occult cord prolapse caused no deaths (though one wonders about fetal brain damage); true cord prolapse was very dangerous for babies.

The average perinatal mortality rate was doubled in association with other cord abnormalities, and was tripled in association with other placental abnormalities (Table 15).

8. Urinary Tract Complications:

There was no perinatal mortality associated with urinary infections. Contrary to recent reports indicating that there is an association between maternal urinary infections and premature births, we found **no** such statistical correlation. **Babies** born to **mothers with urinary tract infections** were **premature only about one fourth as often** as the average for the entire obstetric population (Table 16).

TABLE 16

Urinary Infections and Prematurity

	All Births	Premature Births: No.	Premature Births: Percent
All Patients	4,951	391	7.9
Patients with Urinary Infections	301	6	2.0

However, among those six patients with urinary tract complications whose babies were delivered prematurely, one mother had acute, and five mothers had notable chronic **glomerulonephritis**—a rare, but dangerous, complication among our patients.

This most serious obstetric complication probably contributed significantly to the single maternal death in this study. In 1955, Mrs. A. M., age 40, Gravida VI, Para V, **no prenatal care,** had a late abortion at 18 weeks gestation. A central placenta previa (probably a partially cervical placenta) was delivered first. Fetal delivery was difficult. Blood loss was excessive; 15 units of blood were transfused. Either because of temporary shock, or transfusion reaction, renal function stopped. The patient died in two weeks of uremia. (This was prior to availability of dialysis.) Postmortem examination showed old, severe, chronic glomerulonephritis with superimposed cortical necrosis.

The most important reasons why there were no more maternal deaths among these 5,482 obstetric patients are: 1) Prenatal care for most patients was complete—obstetric complications were recognized early and treated before they became severe, 2) when severe obstetric complications developed suddenly

they were treated specifically and rapidly, and 3) many of these patients had the vigor and resilience of **young** women, which is so important in the obstetric patient.

TABLE 17
Twins and Anomalies

Complication	Number	Fetal Death Rate	Neonatal Death Rate	Perinatal Mortality Rate
Twins	68	88.3	64.5	142.8
Anomalies	46	108.7	414.6	523.3

9. Twins and Anomalies:

Twins and anomalies are associated with very high perinatal mortality (Table 17).

It is significant that perinatal deaths of twins have been **eight times less frequent** during the second half of this study than they were during the first half. This may be due to more careful prenatal care, earlier diagnosis of twins, and more thoughtful delivery techniques, particularly of the second twin.

There were 29 severe, congenital anomalies recorded during the first half, but only 17 recorded during the second half. Associated perinatal deaths have been reduced by one half during the past eleven years, as compared to the first eleven years. This improvement may be related to the increasing acceptance and use of contraception by grand multipara during recent years.

10. Blood

Probably the most important oral supplement for pregnant women is iron; all pregnant women should receive it; those with anemia need special treatment. With this therapy, the 948 obstetric patients who were considered to be anemic during their first prenatal examinations produced babies who had a perinatal mortality rate of only 15.8.

Anticoagulants can be dangerous to babies and to mothers. In the early 1950's we saw two obstetric patients with rheumatic heart disease whose doctors had maintained them on Coumadin therapy. Two fetal deaths occurred in direct association with very low prothrombin times. Likewise, we have seen five instances of excessive and almost uncontrollable bleeding from the uterus, up to three weeks postpartum, secondary to overzealous anticoagulant therapy for thrombophlebitis. The obstetrician who has had these experiences learns to avoid deep anticoagulation in his obstetric and postpartum patients, and tries to maintain necessary anticoagulation very delicately at a minimally therapeutic level.

TABLE 18
Other Complications

Complication	Number	Perinatal Mortality Rate
Diabetes	28	267.9
Hepatitis	15	210.2
Thyroid Disease	33	61.5
Cardiac	82	24.6
Respiratory	880	16.0
Hyperemesis	435	13.9
Varices	229	-
Thrombophlebitis	125	-
Intestinal	122	-
Gynecologic	231	-
Obstetric (miscellaneous)	153	-
Medical (miscellaneous)	132	-
Surgical	46	-

11. Other Complications:

Diabetes is dangerous for fetuses, and these mothers may be gravely ill, particularly if they do not seek care early or do not follow medical advice meticulously. Strict control of the diabetes is essential, but sometimes difficult, because of the pregnancy.

Acute hepatitis is very dangerous for both mothers and babies; premature labor is common.

Thyroid disease and cardiac complications are associated with elevated perinatal death rates, though meticulous treatment helps to reduce this.

The other listed complications, though often presenting difficult treatment problems, were not associated with perinatal deaths.

It is interesting that only 5 among these 5,482 obstetric patients required treatment for syphilis during pregnancies. All five babies were born healthy.

Seven mothers died more than three months, but less than two years, after delivery of their last babies. There was some evidence to indicate that pregnancy influenced early deaths in each of these women. Two had rheumatic heart disease. One had hypertensive heart disease. One had Stage IV carcinoma of the cervix when she was first seen during the last month of her pregnancy. Two died of breast cancer about 18 months postpartum.

Almost certainly, other mothers among these 5,482 have somewhat shorter life ex-

pectancies because of sequelae from sundry complications of pregnancy, although the final evidence is not yet available.

12. Summary of Associated Perinatal Mortality:

Which obstetric complications hold the greatest danger for the fetus and newborn? Perinatal mortality rates which were noted in association with respective obstetric complications (within this private practice during the years 1949 through 1970—including all indigent patients, and complicated referral patients) are listed in sequential order below. The most hazardous heads the list.

Obstetric Complications	Associated Perinatal Mortality Rate
1. Congenital anomalies of fetus	523.3
2. Maternal diabetes	267.9
3. Maternal hepatitis	210.2
4. Hemolytic disease	179.0
5. Premature labor	150.2
6. Twins	142.8
7. Cervical incompetence	129.6
8. Prolapsed cord	128.8
9. Placenta previa	127.3
10. Premature separation of the placenta	125.6
11. Transverse lie	83.3
12. False labor	69.0
13. Other placental abnormalities	62.2
14. Maternal thyroid disease	61.5
15. Premature rupture of the membranes	55.4
16. Threatened abortion	40.8
17. Other cord abnormalities	39.3
18. Breech	29.5
19. Maternal cardiac disease	24.6
20. Hypertension-toxemia	24.1
21. Unwed mother	22.0
22. Preeclampsia	21.3
23. Precipitate labor	18.7
24. Maternal respiratory disease (severe)	16.0

Without thorough prenatal care for most of these patients, many of the listed obstetric complications would have been associated with much higher perinatal mortality rates, notably toxemia, unwed mothers, cardiac disease, breech, thyroid disease, placenta previa, cervical incompetence, twins, and hemolytic disease.

DISCUSSION AND CONCLUSIONS

Probably the most important, single factor affecting the outcome of a pregnancy is **thorough prenatal care** (the office practice of obstetrics). It should start early and continue regularly. Potential problems and complications should be identified early. Corrective and supportive treatments may often protect against the development of severe complications.

If there is likely to be a need for special care of the mother, or the newborn baby, that mother should be referred to the source of special care, if possible, **before** emergency situations arise; only thus can excellent results be obtained.

Babies not only die as the result of obstetric complications, but they can also be mentally or physically handicapped in varying degrees. Though it is not always possible to prevent each of these situations from occurring, early treatment usually produces better results than later treatment.

Maternal mortality, though rare, still can occur. Maternal morbidity is much more common. Again, anticipation and prevention will eliminate much more morbidity than will later, emergency treatment. Sequelae from obstetric complications, or simply from many pregnancies, may shorten a woman's life, sometimes within a few years after the last pregnancy. Other women live longer, suffering from chronic disease which resulted from their pregnancies. Thorough prenatal, postpartum, and family planning care should help to decrease these sequelae.

Despite recent literature to the contrary, our records show a definite correlation between obesity and/or excessive weight gain during pregnancy, and hypertension with superimposed toxemia. Therefore, we still prefer to limit weight gain during pregnancy to 20 pounds. Likewise, edema is treated actively.

Despite recent literature to the contrary, our records showed **no** statistical correlation between urinary infections of mothers and prematurity of their babies.

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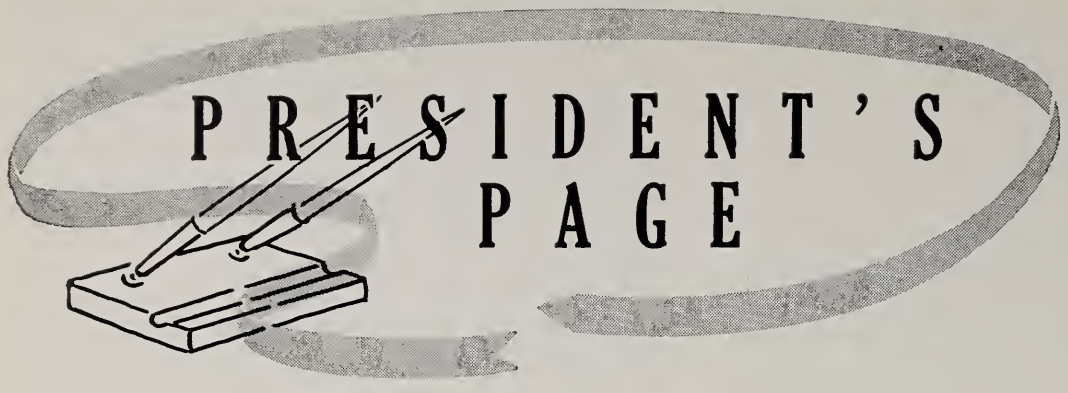

The plan to lift South Dakota out of the backwaters of medical education by providing first-stage funding for a degree-granting school at the University of South Dakota was brought to a temporary halt when the bill appropriating $500,000 for this purpose met its end in the Legislature's Joint Appropriations Committee. This was not entirely unexpected and it should be pointed out with emphasis that the campaign to put our state on the right road toward a reasonable level of educational self-sufficiency will continue.

There is a pervading feeling that as long as South Dakota two-year graduates can be sent elsewhere to complete their medical education, it is economically unwise and perhaps pedagogically unsound to go through the throes of establishing a complete educational structure of our own. If this were true, one could perhaps feel somewhat less intense about the three-year concept for this state. But it is not true . . . or at least, the time is rapidly approaching when it will not be.

Already, medical schools in other states have begun tightening their admission of out-of-state students, all but surfeited as they are becoming with their own. An exhaustive survey of this developing situation by the University of North Dakota Medical School brought the disturbing conclusion that by 1976 almost all such avenues of continuing education will be closed to graduates of UND's two-year school. This is a direct quote from Dr. Ted Harwood, Dean of the University of North Dakota Medical School.

Needless to say, the same disquieting outlook confronts us in South Dakota.

If the UND survey is soundly based, and it apparently is, the outlook for anything other than a degree-granting school right here is bleak indeed. The time element is thrust into the fore with a vengeance. Where once we could project a ten-year or 15-year campaign to achieve such a level of medical education, we now have five years, or six or seven. Time has suddenly become much more of the essence.

What this requires of us, in my opinion, is renewed determination to do everything we can on behalf of the the proposed degree-granting school. It is not difficult to envision a time not far off when there will be no real reason to continue even our present two-year school because its graduates will have no place to go, no place to transfer—not because they are not soundly prepared and otherwise admissible but because the old way had to give way to some new realities.

I have long held that the answer to South Dakota's health care crisis is the preparation and training of adequate paramedical personnel coupled with a medical school which can graduate young men ready to begin practice and who, at least as often as not, can be expected to stay HERE where they are so badly needed.

I don't believe anything else will get the job done. I don't believe, if we are to prepare for the future, we can travel any other road.

G. Robert Bartron, M.D.
President

CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

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FORTY-FIVE YEAR OLD CAUCASIAN MALE WITH CHEST PAIN AND SHOCK ONE WEEK AFTER ABDOMINAL AND CHEST TRAUMA

CASE NO. 70-1548

This forty-five year old Caucasian male entered because of chest and abdominal pain of several days duration.

The patient had been in good health prior to an accident one week previously when he fell into an open grease pit and sustained bruises to his left hip and left lateral thoracic cage. He was not knocked unconscious, but required Diazepam [Valium] and Pentazocine [Talwin] for pain and muscle spasm in the areas injured.

He had been doing quite well until the evening prior to admission when he began running a temperature up to 101. On the morning of admission he was awakened at 6:00 A.M. with severe pain in the abdomen, in both shoulders and in the left side of the chest. He vomited once on the way to the hospital. His bowels had moved normally the day prior to admission. There was no melena or hematemesis. There was no hematuria or genitourinary problems. He had had an appendectomy at age 14 years.

PHYSICAL EXAMINATION: Temperature - 98.4°F., respiration 28/min. with marked splinting of the left chest and abdomen, pulse 110/min. and regular, blood pressure 94 systolic and 72 diastolic. He was alert and oriented. Examination of the head and neck was negative. There were a few rales in the left lateral lower lung field and considerable splinting of the left side of the chest. The lungs were otherwise clear to percussion and auscultation. The heart had a normal sinus rhythm with no murmurs. There was diffuse guarding of the abdomen and muscle spasm in the abdominal and intercostal muscles. There was no specific area of tenderness and no palpable organs or masses. There were ecchymoses of the left lateral thigh and left lower lateral rib cage.

CLINICAL PATHOLOGY DATA: Urinalysis yellow, clear, specific gravity - 1.010, pH - 5.0, negative for protein, glucose, ketones, hemoglobin, and bile; microscopic negative. Hemoglobin - 15.0 gm/100 ml., red count - 4.64 million/mm^3, hematocrit - 45 Vol.%, mean corpuscular hemoglobin - 31 micromicrograms, mean corpuscular volume - 96 cubic micra, mean corpuscular hemoglobin concentration - 35%, total leukocyte count - 14,900/mm^3 with 74% neutrophils, 3% neutrophilic bands, 2% eosinophils, 19% lymphocytes, 2% monocytes, platelets were adequate in number and normal in morphology on the smear. The red cells were

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normochromic, normocytic. Erythrocyte sedimentation rate was 34 mm/hr. Several hours later the hemoglobin was 13.6 gm/100 ml. and total leukocyte count of 9,800/mm^3. The differential counts were similar to admission. Two hours later the hemoglobin was 10.9 gm/ml. Transfusions of whole blood were given. Serum amylase was 72 and 30 units (normal 20-160 units), calcium - 9.5 mg/100 ml., serum glutamic oxalocetic transaminase 23 units/100 ml. Blood urea nitrogen was 17 mg/100 ml. Electrocardiogram showed sinus tachycardia, interventricular conduction defect and ischemic changes which could be due to anemia, tachycardia, or injury. A portable chest and abdominal film were negative. Abdominal film the following day showed a question of early distal mechanical small bowel obstruction or minimal ileus. An operation was performed.

DR. ROBERT NELSON: Essentially we have a 45-year old man who, one week after trauma, had chest pain, abdominal pain, shoulder pain, and then developed signs of shock with a decreasing hemoglobin. These are the classical signs of so-called delayed rupture of the spleen. When I think of rupture of the spleen, I like to establish the following points: 1) The history of injury to the rib cage laterally and posteriorly on the left side or blunt trauma to the left upper quadrant of the abdomen. A history of ramming a bicycle horn in the left upper quadrant or a kick in this region is very significant history. Any object which is fairly pointed striking under the rib cage in the region of the left upper quadrant can rupture the spleen. I had one ruptured spleen wherein a man fell against a pick-ax when the light went out on a construction job. 2) Abdominal pain. Patients who have blood in the peritoneum almost always have some abdominal pain, tenderness, and rebound. For one reason or another, there is great variation from individual to individual. In some individuals blood in the peritoneal cavity gives rise to very marked signs and symptoms and in others the signs and symptoms are not so severe. 3) Shoulder pain. This is a significant part of this history since you almost always have shoulder pain with rupture of the spleen. This comes from irritation of the underside of the diaphragm by the blood. There are not too many other things which cause shoulder pain in abdominal disease. Occasionally, abundant air under the diaphragm will cause it, but in my experience, I have not seen shoulder pain with conditions such as ruptured peptic ulcer. Evidently, there is not enough air. Occasionally, shoulder pain can be seen in a rapidly spreading peritonitis.

I feel that a history of trauma to the left upper quadrant or left rib cage along with shoulder pain and some findings in the abdomen are good indications for surgery. Of course, the dropping hemoglobin and the signs of shock make the diagnosis much more apparent. However, I think you are much better off to operate on the patient before he goes into shock.

If you are in doubt about the diagnosis, there are several things that can be done. One is the four quadrant tap in which one puts a needle into the peritoneal cavity lateral to the rectus muscle in each of the four quadrants of the abdomen. A larger caliber needle should be used. Occasionally, this will work and you can aspirate blood. However, you can have an awful lot of blood in the peritoneal cavity and not be able to aspirate it with a needle. Another technique that is being recommended is peritoneal lavage. This is done by making an incision half-way between the umbilicus and the pubis, inserting a dialysis catheter, and irrigating the peritoneal cavity. Often you can irrigate blood. Now I must admit I have not done this because usually I have been able to make the diagnosis without it.

I prefer a left high paramedian incision for these patients. I open the rectus sheath and retract the muscle laterally and then enter the peritoneal cavity. Exposing the spleen in this way is very simple. You simply reach in with your hand and grab the spleen and rupture the attachments to the diaphragm. This will bring the spleen down. You can then bring the spleen to the midline and it tightens the lienal-renal ligament. After you cut these, the spleen can easily be delivered. You can get a spleen out in less than a minute in this manner. You can then easily control bleeding because you have control of the pedicle which you can now clamp and tie. The only structure you have to watch

for is the tail of the pancreas which lies in the hilum of the spleen.

There are several things blunt trauma can do in the abdominal cavity, but I do not believe they are applicable to this case. Trauma to the upper abdomen, especially when it strikes a full stomach, can rupture the lower esophagus. The fluid is forced up into the stationary esophagus and it ruptures. This is the same area that ruptures after severe bouts of vomiting. Rupture of the pancreas can occur from blunt trauma to the upper abdomen but this takes a severe blow. Blunt trauma to the mid-abdomen can cause rupture of the small bowel which is usually at its points of fixation at the ligament of Treitz or ileo-cecal valve. An even more common injury from mid-abdominal trauma is rupture or tearing of the mesentery of the small bowel. Blunt trauma to the lower abdomen usually ruptures the bladder. My diagnosis then is rupture of the spleen. I think there was a small tear in the spleen with the formation of a sub-capsular hematoma which enlarged and finally ruptured giving rise to more free bleeding into the peritoneal cavity producing the shock. The patient was then operated upon. This is so-called delayed rupture of the spleen.

DR. NELSON'S DIAGNOSES

Splenic tear with subcapsular hematoma and free peritoneal bleeding

DR. BARLOW: Thank you. Dr. Shreves, do you have any comments?

*DR. HOWARD SHREVES: I agree with Dr. Nelson's diagnosis. I think you have to remember that until the time the subcapsular hematoma ruptures into the peritoneal cavity you may have a normal hemoglobin. I had a patient who sustained left upper quadrant injury in an automobile accident who had no abdominal signs or symptoms or palpable mass. This patient had a huge hematoma within the spleen which looked like currant jelly.

I think it is wise to remember that if there is a fracture of the 12th rib, you should suspect a ruptured spleen. These patients should be observed.

**DR. PAUL SANDERS: How long do you keep them in the hospital?

DR. SHREVES: I keep them in several days until I am sure they are not developing shoulder pain or any increased white count or a drop in hemoglobin. I think they should be followed carefully after that. I might point out that I have operated on a number of ruptured spleens but I have never had to do it immediately. Often if the spleen is ruptured so that there is immediate intra-peritoneal hemorrhage, the patient will be dead before you see him. It is more common to have this delayed type of rupture. I should have mentioned why I operated on this patient that I described above who had no abdominal signs or symptoms, no increase in white count, and no shoulder pain but who had a massive intrasplenic hematoma. She did not look right, and I think this is because of the vasoconstriction that they have shunting of the blood away from organs like the skin into the more vital organs. I watched for about three days before I operated. The patient did, however, have a drop in hemoglobin of 4 - 5 grams, and this is what persuaded me to operate. This is just to point out that a patient may have no symptoms in the abdomen before they have free peritoneal bleeding (which I am sure the above patient would have had if she had not been operated upon).

DR. BARLOW: Dr. Ensberg, what do you think?

†DR. DARENCE ENSBERG: I agree with the diagnosis. I think that when you suspect the patient may have a subcapsular hematoma there is no set time that you can keep them in the hospital or you would have to keep them in up to two weeks. If you are going to discharge them, I hate to see them go too far because they could rupture at any time. A flat plate of the abdomen has often been helpful to me. I think you can often outline the soft tissue mass in the right upper quadrant.

DR. NELSON: I should also like to emphasize again that I think you can diagnose a ruptured spleen before free intraperitoneal bleeding. I think it is important to operate on the patient before he goes into shock. I have had three bicycle horn injuries. The first one had rupture with free intraperitoneal bleeding, but the

*Surgeon, Sioux Valley Hospital.
**Intern, Sioux Valley Hospital.

†Surgeon, Sioux Valley Hospital; Assistant Clinical Professor of Surgery, School of Medicine, University of South Dakota.

second and third I operated upon according to the criteria which we discussed above. Both had ruptured spleens with subcapsular hematomas without free peritoneal bleeding. Therefore, I got to these patients before they went into shock.

DR. SHREVES: I would like to add that instead of the paramedian incision which you use, I use a transverse incision with the patient lying on his side. I think it is much easier to get at the spleen this way, especially if it is bleeding. Gross uses this incision in children and finds it very useful. You do not need any retraction because the chest stays up and the spleen will fall down by itself.

††DR. JOHN OCHSNER: How many times have you seen a rupture of the kidney and spleen together? I am not acquainted with this type of injury. I do think, however, that if there is a fracture of the 12th rib, you are more likely to get kidney injury than spleen injury.

DR. NELSON: I have seen a case in which the spleen was ruptured and the kidney was also split in two.

DR. SHREVES: I have not seen rupture of the kidney and spleen together, but I frequently see blood in the urine in patients who have a ruptured spleen.

DR OCHSNER: I would imagine that this patient would have had some blood in the urine if he had been followed with serial urinalyses after the accident.

DR. ENSBERG: Has anybody ever seen a patient with a ruptured spleen with a normal white count?

DR. SHREVES: I remember we saw a patient together who had a normal white count, but, in general, a patient with a ruptured spleen has a white count elevation of anywhere from 25,000 to 40,000/mm^3.

DR. ENSBERG: Yes, often without much in the way of abdominal signs. The white count is a very helpful indicator of possible ruptured spleen in a patient who has had abdominal trauma.

DR. PAUL SANDERS: When does one use the intraperitoneal lavage for diagnosis?

DR. NELSON: I think in the ordinary case you do not need it. However, if you have a multiple injury patient who is a poor risk for other reasons, you might use it in that situation.

*DR. PHILIP MEAD: Can you palpate these spleens?

DR. NELSON: No, I have never felt one.

DR. OCHSNER: Let me ask this question. Suppose you are doing an exploratory laparotomy and you see bleeding in the retroperitoneal space in the region of the kidney. What do you do? We'll assume he does have a ruptured spleen.

DR. NELSON: I have seen this quite frequently. I simply palpate the region of the kidney and unless I can feel marked disruption, I do nothing. In fact, I saw retroperitoneal bleeding in the last case that I saw, but the kidney felt intact.

DR. OCHSNER: This is what I wanted to point out. I think it is very important to keep Gerota's fascia intact because this acts as a tamponade mechanism and prevents major bleeding. Serious bleeding from the kidney is prevented by this tamponade and explains why renal trauma is fairly well tolerated as compared to splenic trauma. In fact, surgery for renal trauma is a delayed type of surgery rather than emergency-type surgery.

DR. BARLOW: I presented this case for many of the points that were discussed. This is an age in which we are seeing a lot of blunt abdominal trauma and I think it is important to point out that there can be tremendous injuries to the viscera with very little external evidence on the body and no fractures. We certainly can see terrible injuries to the brain with no skull fracture. You can see ruptured aortas with no rib fractures, and the injuries from blunt abdominal trauma have been pointed out. Here is a picture of the hema-

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††Urologist, Sioux Valley Hospital; Assistant Clinical Professor of Urology, School of Medicine, University of South Dakota.

*Intern, Sioux Valley Hospital.

Figure 1

Intrasplenic hematoma (lower arrow) and subcapsular hematoma (upper arrow).

toma within the spleen and the subcapsular hematoma. (Figure 1) At operation this patient had an estimated 2 units of blood which was unclotted in the abdomen and also bleeding into the retroperitoneal space. He apparently has no problem following his surgery.

FINAL ANATOMIC DIAGNOSIS

Laceration of Spleen With Subcapsular Hematoma

Almost all ruptured spleens are traumatic in origin. Spontaneous rupture of the spleen is extremely rare. I have seen two in infectious mononucleosis. This condition predisposes to rupture particularly since the capsule is markedly infiltrated by the cells of infectious mononucleosis. Spontaneous rupture of the spleen in acute or chronic leukemia has been described, but it is really quite rare. Actually, any process which would cause enlargement of the spleen will predispose to its rupture by trauma.

The spleen can be removed with impunity in the adult and there are no bad consequences, although this has been questioned. However, there is argument about removal of the spleen in infants and very young children. There is some evidence that this predisposes these patients to pneumococcal sepsis. In the adult, the only consequences of the removal of the spleen are a rather marked thrombocytosis and bizarre change in the peripheral blood smear. These include the presence of many inclusions in the red cells which are normally removed by the spleen as the red cells traverse the splenic circulation. This is called the "pitting" function of the spleen. However, it may not be wise to remove the spleen electively for hematologic reasons under the age of 3 years. I was wondering whether one of the surgeons would like to comment on the possible dangers of thrombocytosis which is common after splenectomy.

DR. ENSBERG: I have seen it often, but I have never gotten into any trouble with the high platelet count.

DR. NELSON: I should mention that you never take a large spleen out in a child who has portal hypertension. This ruins your chance for a good splenorenal shunt.

*DR. MICHAEL BROWN: Is a splenic scan helpful in diagnosing splenic rupture?

DR. BARLOW: There have been several reports showing that splenic rupture can be diagnosed by splenic scanning. With technetium 99 sulfur colloid, we should be able to do this easily but have not done it yet at this hospital. It may be a very useful diagnostic adjunct.

*Intern, Sioux Valley Hospital.

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Letters to the Editor

February 7, 1972

Richard C. Erickson, Executive Secretary
South Dakota State Medical Association
711 North Lake Avenue
Sioux Falls, South Dakota

Dear Mr. Erickson:

I received my honorary membership card today from Dr. Giebink, the treasurer of the 7th District.

I wish to express my sincere appreciation to the Council and to all the members of the South Dakota State Medical Association for the signal honor of having been granted honorary life membership in the Association.

It is hard to adequately express my thanks to all my friends in the medical profession in the State, or how much this honor means to me.

Sincerely yours,

Mark F. Williams, M.D.

Dr. Robert E. Van Demark
South Dakota Journal of Medicine
711 N. Lake Avenue
Sioux Falls, S. D. 57104

Dear Sir:

I am editing a book on the role of faith or religion in healing from a physician's standpoint. Any physician interested in contributing to this book, please write to the following address:

Claude A. Frazier, M.D.
4-C Doctors Park
Asheville, N. C. 28801

Sincerely,

Claude A. Frazier, M.D.

GERONTOLOGICAL NURSING SERIES PRESENTED BY SDNA

The South Dakota Nurse's Association has contracted with the South Dakota Regional Medical Program to present to the nurses of South Dakota a series of 89 video tapes entitled "Gerontological Nursing." They will be presented via the South Dakota Educational Television Network. The tapes are shown at 9:30 p.m. on Monday evenings and repeated at 8:30 a.m. on Tuesday mornings. The series began on April 3 (April 4) and will continue until May 22 (May 23) on Channels 2 (Vermillion), 8 (Brookings), 9 (Rapid City), 10 (Pierre), and 16 (Aberdeen). The titles of the tapes in the series are "About the Aged," "Health of the Aged," "Planning Care for the Aged," "The Homebound Aged," "The Institutionalized Aged," "Nursing Care of the Aged," "Psychiatric Problems of the Aged," and "The Health Team and the Aged."

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INTER-STATE REGIONAL PLANNING FOR NURSING NEEDS AND RESOURCES STUDY

On October 28, 1971, the Department of Nursing of the National Institute of Health awarded the Minnesota Nurses Association a contract to examine the feasibility of inter-State regional planning for nursing needs and resources. The region involves the states of the 9th Federal Reserve District namely; Michigan, Minnesota, Montana, **South Dakota**, North Dakota and Wisconsin. Iowa was also included in the study. This area shares common demographic characteristics and hence lends itself well to a regional planning activity.

According to the terms of the contract, a Core Committee composed of four representatives from each of the seven states shall determine the possibility of undertaking a regional planning activity. This group shall identify and explore common problems and inter-State relationships and dependencies related to nursing needs and resources that might best be handled on a regional basis. Areas that need further study shall be delineated as well as means that should or could be considered in dealing with nursing concerns on a regional basis. A survey of available data and necessary information will also be undertaken.

Presently the Core Committee representatives are informing the members of the organizations which they represent regarding the scope of the project and some attempt is to be made to delineate an issue feasible to study regionally.

Mrs. Ann Shiely is Project Director. The representatives from South Dakota are Mrs. Therese Schwab, Regional Medical Program; Miss Joy Nelson, Planning Council for Nursing Needs and Resources; Miss Helen Boyd, South Dakota Board of Nursing and Mrs. Joyce Sugrue, South Dakota Nurses' Association.

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Warnings
When weight loss is unsatisfactory the recommended dosage should not be increased in an attempt to obtain increased anorexigenic effect; discontinue the drug. Tolerance to the anorectic effect may develop. Drowsiness or stimulation may occur and may impair ability to engage in potentially hazardous activities such as operating machinery, driving a motor vehicle, or performing tasks requiring precision work or critical judgment. Therefore, such patients should be cautioned accordingly. Caution must be exercised if Pre-Sate (chlorphentermine hydrochloride) is used concomitantly with other central nervous system stimulants. There have been reports of pulmonary hypertension in patients who received related drugs.
Drug Dependence Drugs of this type have a potential for abuse. Patients have been known to increase the intake of drugs of this type to many times the dosages recommended. In long-term controlled studies with the high dosages of Pre-Sate, abrupt cessation did not result in symptoms of withdrawal.
Usage In Pregnancy The safety of Pre-Sate (chlorphentermine hydrochloride) in human pregnancy has not yet been clearly established. The use of anorectic agents by women who are or who may become pregnant, and especially those in the first trimester of pregnancy, requires that the potential benefit be weighed against the possible hazard to mother and child. Use of the drug during lactation is not recommended. Mammalian reproductive and teratogenic studies with high multiples of the human dose have been negative.
Usage In Children Not recommended for use in children under 12 years of age.

Precautions
In patients with diabetes mellitus there may be alteration of insulin requirements due to dietary restrictions and weight loss. Pre-Sate (chlorphentermine hydrochloride) should be used with caution when obesity complicates the management of patients with mild to moderate cardiovascular disease or diabetes mellitus, and only when dietary restriction alone has been unsuccessful in achieving desired weight reduction. In prescribing this drug for obese patients in whom it is undesirable to introduce CNS stimulation or pressor effect, the physician should be alert to the individual who may be overly sensitive to this drug. Psychologic disturbances have been reported in patients who concomitantly receive an anorectic agent and a restrictive dietary regimen.

Adverse Reactions
Central Nervous System: When CNS side effects occur, they are most often manifested as drowsiness or sedation or overstimulation and restlessness. Insomnia, dizziness, headache, euphoria, dysphoria, and tremor may also occur. Psychotic episodes, although rare, have been noted even at recommended doses. **Cardiovascular:** tachycardia, palpitation, elevation of blood pressure. **Gastrointestinal:** nausea and vomiting, diarrhea, unpleasant taste, constipation. **Endocrine:** changes in libido, impotence. **Autonomic:** dryness of mouth, sweating, mydriasis. **Allergic:** urticaria. **Genitourinary:** diuresis and, rarely, difficulty in initiating micturition. **Others:** Paresthesias, sural spasms.

Dosage and Administration
The recommended adult daily dose of Pre-Sate (chlorphentermine hydrochloride) is one tablet (equivalent to 65 mg chlorphentermine base) taken after the first meal of the day. Use in children under 12 not recommended.

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Manifestations: Restlessness, confusion, assaultiveness, hallucinations, panic states, and hyperpyrexia may be manifestations of acute intoxication with anorectic agents. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension, or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Fatal poisoning usually terminates in convulsions and coma.
Management: Management of acute intoxication with sympathomimetic amines is largely symptomatic and supportive and often includes sedation with a barbiturate. If hypertension is marked, the use of a nitrate or rapidly acting alpha-receptor blocking agent should be considered. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendations in this regard.

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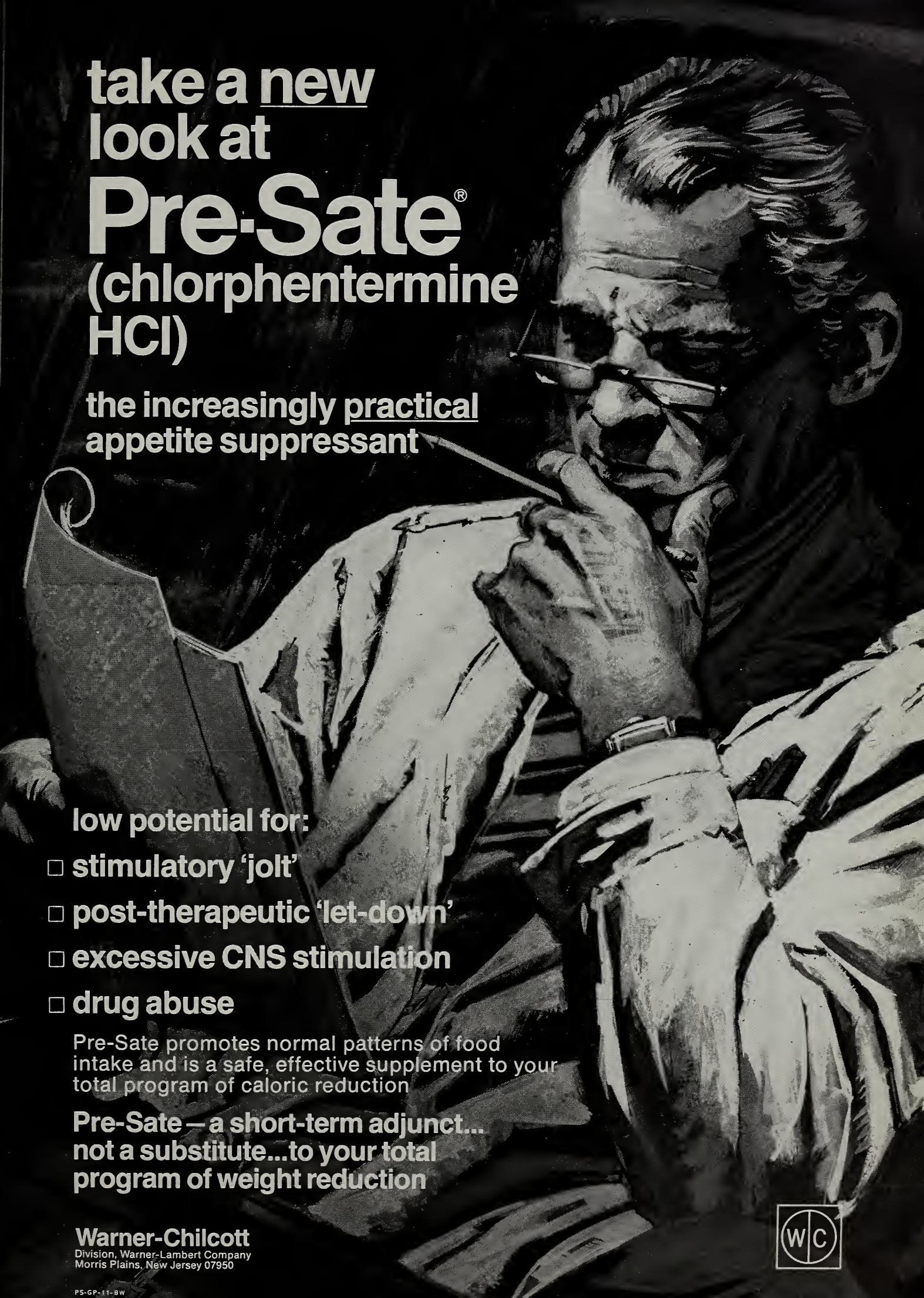
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News Notes • Changes • Births • News

A. A. Lampert, M.D., Rapid City, has been named Chairman of the American Medical Association's Legislative Council. Dr. Lampert has been an active member of this Council for a number of years.

* * * *

Dr. and Mrs. A. P. Reding of Marion attended the International Post-Graduate Seminar on Medicine in Acapulco in February.

* * * *

A. P. Reding, M.D. of Marion attended the meeting of the National Mental Health Committee of the Academy of Family Practice in San Diego. Dr. Reding serves as a member of that committee.

* * * *

Richard C. Erickson, Executive Secretary, has been named to the Board of Directors of the Minnehaha Country Club in Sioux Falls.

* * * *

Robert E. Van Demark, M.D., Sioux Falls, served as fund raising chairman for the Easter Seal Society whose campaign began February 28 and continued through Easter Sunday, April 2.

* * * *

In observance of the 50th anniversary of the National Medical Auxiliary the Seventh District Auxiliary honored members who have been physicians' wives for 40 years or more at a brunch and social hour at the Westward Ho Country Club in Sioux Falls. Honored guests included Mrs. Will Donahoe, Mrs. O. C. Erickson, Mrs. E. T. Lietzke, Mrs. O. E. Groebner, Mrs. Anton Hyden, Mrs. E. S. Stenberg, Mrs. O. V. Opheim and Mrs. J. B. Gregg, Sr.

* * * *

L. W. Tobin, M.D., Mitchell, has been re-elected to active membership in the American Academy of Family Physicians.

* * * *

Members of the Yankton Rotary Club heard **G. Robert Bartron, M.D.,** State Association President, speak on the future of medical education in South Dakota.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

Officers for the Seventh District Medical Society for 1972 include **Edward Daw, M.D.,** President; **Denny Ortmeier, M.D.,** Vice President; **James Shaeffer, M.D.,** Secretary; and **R. R. Giebink, M.D.,** Treasurer; all of Sioux Falls.

* * * *

The Huron area Chamber of Commerce presented its Distinguished Civic Service Award to **R. A. Buchanan, M.D.,** who has practiced medicine continuously in Huron since 1930.

* * * *

Charles E. Townsend, M.D., has joined the Fort Meade Veterans Administration Hospital as chief of the medical staff. Dr. Townsend, a native of Mississippi received his medical degree from Northwestern University and was a staff physician for the past four years at the V. A. Center in Fort Harrison, Montana.

* * * *

E. S. Watson, M.D. was elected to a ninth consecutive term as president of the Brookings Area Guidance Center's Executive Committee. Also elected to the Board was **C. S. Roberts, M.D.**

* * * *

New officers for the Whetstone Valley District Medical Society are President, **Joseph Lovering, M.D.;** and Secretary, **L. F. Nelson, M.D.,** both from Webster.

SYMPOSIUM ON EXERCISE AND THE HEART
May 3, 1972

The Committee on Exercise and Physical Fitness of the American Medical Association with the Nebraska State Medical Association, the Nebraska Heart Association and the President's Council on Physical Fitness and Sports will jointly sponsor a Symposium on Exercise and the Heart on Wednesday, May 3, 1972, from 2:00 to 5:30 p.m. at the Hotel Cornhusker in Lincoln, Nebraska.

The Symposium is open to both physicians and allied health personnel and will be held in conjunction with the Annual Meeting of the Nebraska State Medical Association.

The program will include presentations on exercise and cardiovascular health, prescription of exercise for well patients, exercise programs following cardiovascular episodes, conditioning exercises in a physical fitness program, and problems incidental to exercise programs.

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We have been asked to announce a change in the location of the National Conference on Cancer Chemotherapy.

This Conference will be held June 1, 2 and 3, 1972 at the Biltmore Hotel in New York City, and is sponsored by the American Cancer Society and the National Cancer Institute. No registration fee.

For further information, write: Sidney L. Arje, M.D., Coordinator, National Conference on Cancer Chemotherapy, c/o American Cancer Society, 219 East 42nd Street, New York, New York 10017.

* * *

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A General Practice Review will be held June 12-17, 1972 at the YMCA Conference Center, Estes Park, Colorado. This course is presented exclusively by members of the faculty of the clinical departments of the University of Colorado School of Medicine.

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The final course, Pediatrics, will be offered from July 30-August 2, 1972 at Aspen, Colorado. In addition to formal lectures, discussion workshops will be held moderated by members of the faculty of the department of Pediatrics and the University of Colorado School of Medicine.

For detailed programs and further information, write to: The Office of Postgraduate Medical Education, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80220.

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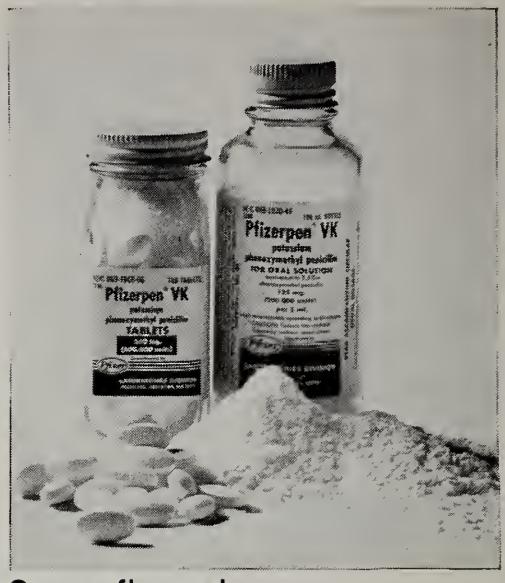

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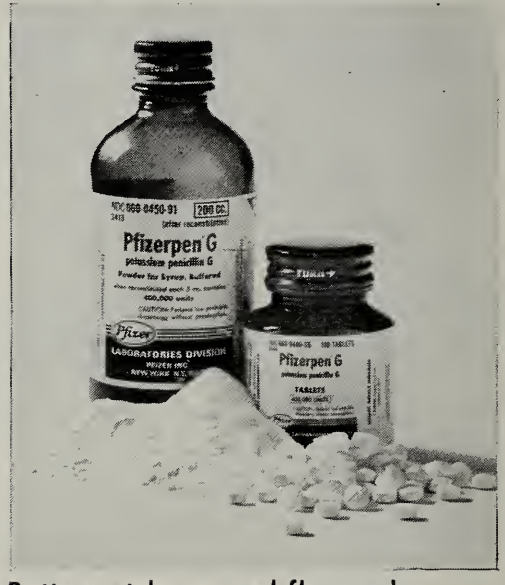

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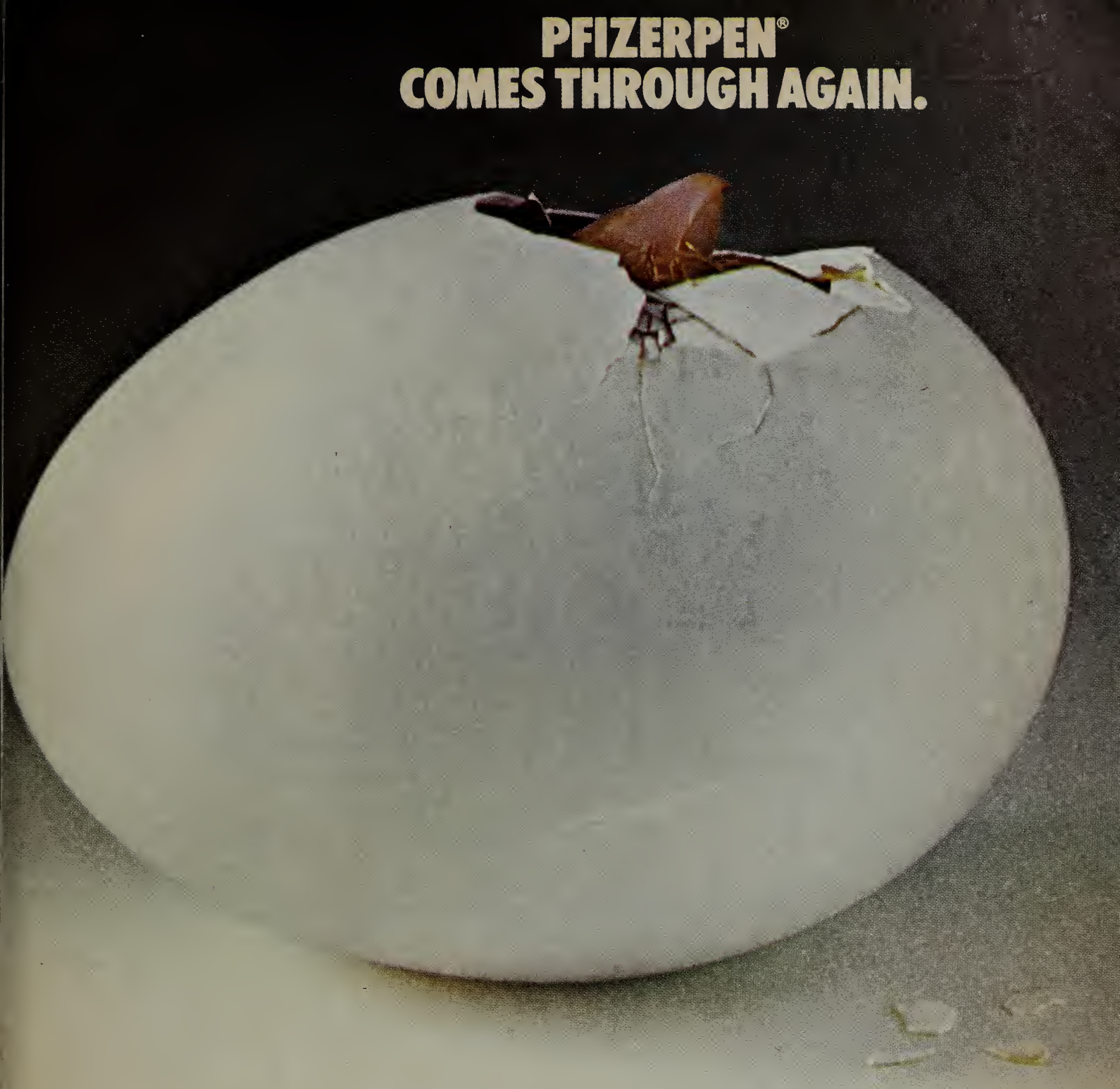

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We have been advised by the Social Security Administration that the number of reported Medicare assignment violations, on a national basis, has shown a steady and significant increase in the past two years. **Physicians and suppliers should make sure that their office staff or billing agents are thoroughly familiar with assignment provisions.**

Under the law, acceptance of an assignment requires the physician or supplier to accept the carrier's determination of the allowable charge for a service as his **full charge** for that service. This means that, for services covered under an assignment agreement, the physician or supplier cannot bill the patient for any more than the difference between the allowable charge determined by the carrier and the payment received from the carrier. Payment **cannot** be demanded from the beneficiary in assignment cases for the difference between the allowable charge and the actual charge, if a reduction of the actual charge has been made by the Medicare carrier. And an assignment agreement, once made, cannot be revoked in whole or in part by one party alone, without the consent of the other party.

In view of the increasing incidence of assignment violations, the Social Security Administration has asked for increased monitoring efforts by carriers. When possible assignment violation is indicated through carrier review, or on the basis of a beneficiary complaint, we will contact the physician or supplier to be sure that the provisions of the assignment agreement are understood by him and his office staff. Where a violation has occurred, assurances will be obtained that a refund or corrected bill will be sent to the beneficiary, and that beneficiaries will not be billed for reductions on assigned claims in the future.

Where, despite these efforts, there are repeated or uncorrected violations, we are required to suspend further payments to the physician or supplier on assigned claims.

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MEDICAL STUDENTS ACTIVE IN SDSMA ACTIVITIES

The South Dakota State Medical Association has students from the University of South Dakota School of Medicine as well as practicing physicians in its organization.

This year's delegates to the SDSMA are: Bruce Vogt, Yankton, S.D., The Commission on Internal Affairs; Bruce Richardson, Kirkland, Wash., The Commission on Scientific Medicine; Earl Lorenzen, Gary, S.D., The Commission on Communication and Liaison; Bob Rose, Lead, S.D., The Commission on Medical Service; Charles Lord, Pierre, S.D., The Commission on Legislation and Governmental Relations; Tom Edwards, Rapid City, S.D., Council; Nolan Anderson, Howard, S.D., and Mike Haley, Vermillion, S.D., in the House of Delegates.

Students began to be represented three years ago. They serve as representatives on the various commissions, the Council, and in the House of Delegates. They are elected by their classmates during their freshman year, and take part in the organization during their sophomore year.

Representation in the organization was given to the students so they could gain an interest in organized medicine, but the practicing physicians feel they are also gaining from this representation. Although students do not have voting privileges, they have often pointed out a specific idea that is later voted on by the physicians. The South Dakota State Medical Association considers the student input and ideas to expand the quality of medical care as beneficial.

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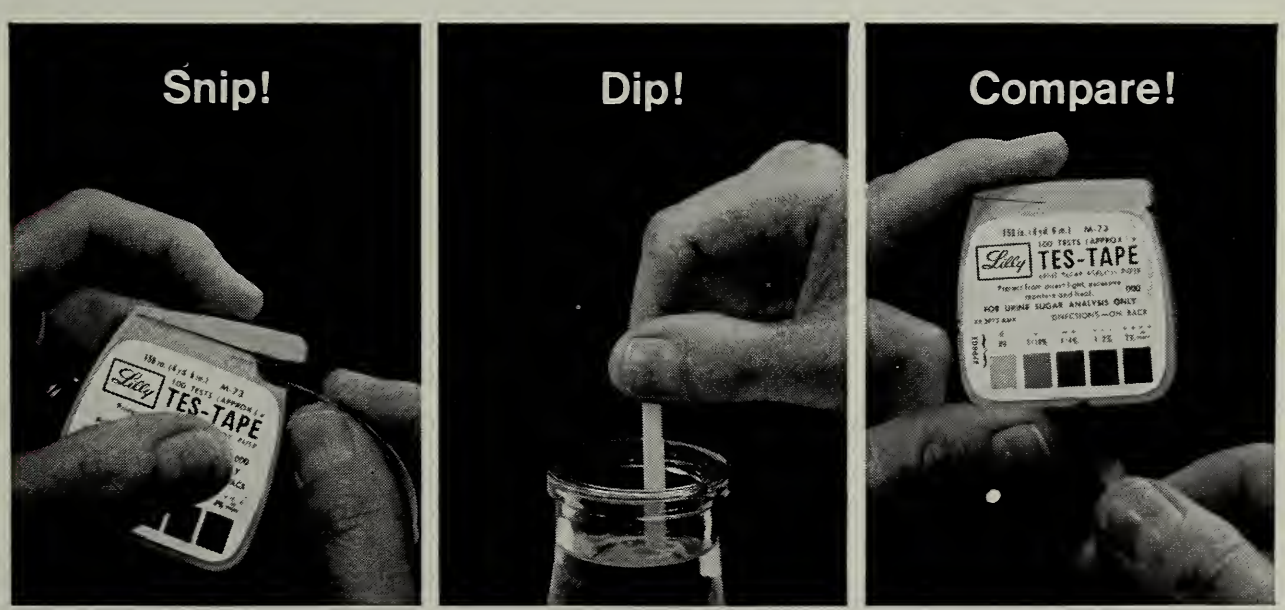

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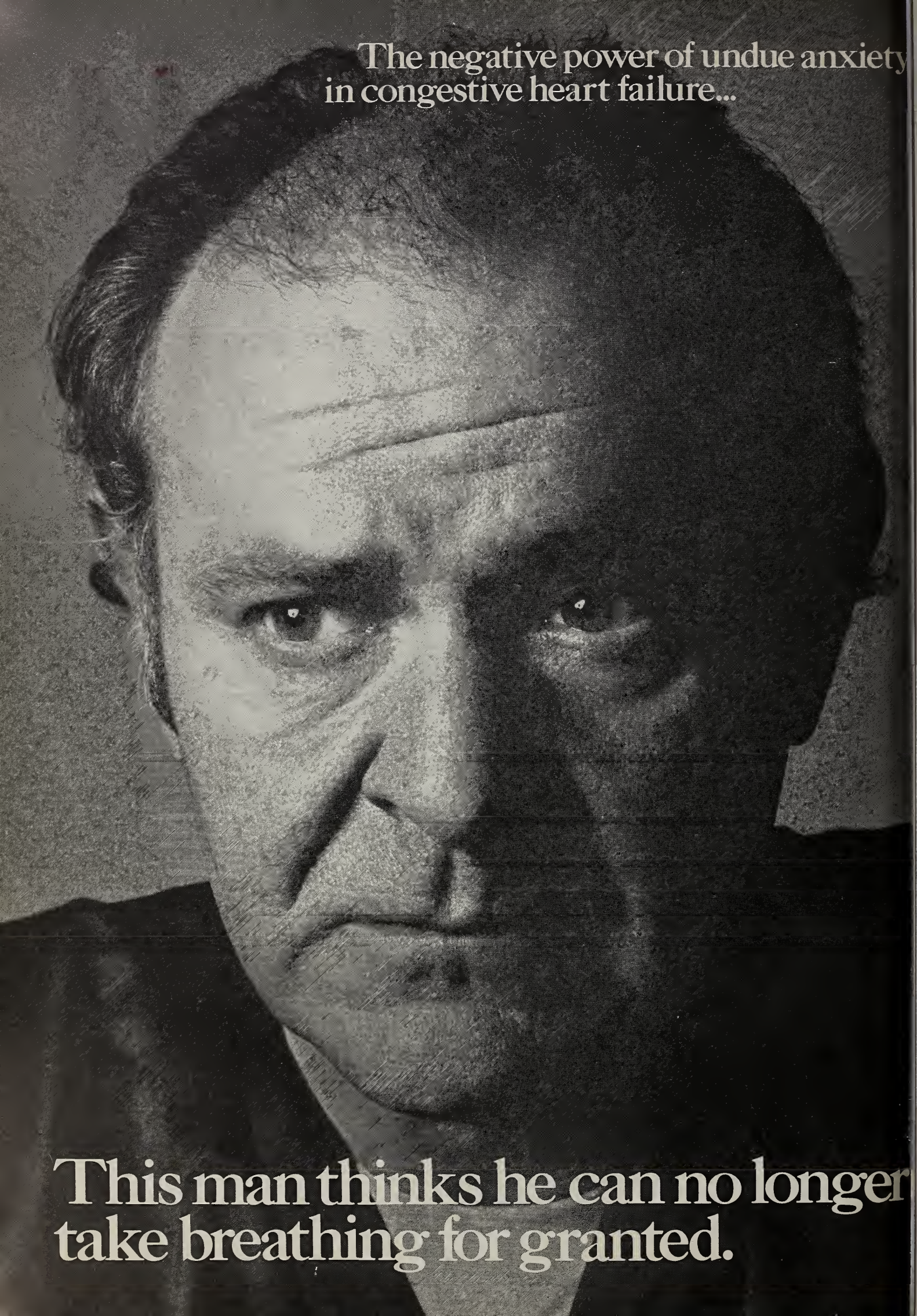
The negative power of undue anxiety
in congestive heart failure...
This man thinks he can no longer
take breathing for granted.

JUN 2 1972

Typical of many patients with congestive heart failure, he also suffers from severe anxiety, a psychic factor that may influence the character and degree of his symptoms, such as dyspnea. His apprehension may also deprive him of the emotional calm so important in maintenance therapy.

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Specific medical and environmental measures are often enhanced by the antianxiety action of adjunctive Libritabs (chlordiazepoxide). Libritabs can also facilitate treatment of the tense convalescent patient until antianxiety therapy is no longer required. Whereas in geriatrics the *usual daily dosage* is 5 mg two to four times daily, the *initial dosage* in elderly and debilitated patients should be limited to 10 mg or less per day, adjusting as needed and tolerated.

Concomitant use with primary agents

Libritabs is used concomitantly with certain specific medications of other classes of drugs, such as cardiac glycosides, diuretics, antihypertensives, vasodilators and oral anticoagulants, whenever excessive anxiety or emotional tension adversely affects the clinical condition or response to therapy. Although clinical studies have not established a cause and effect relationship, physicians should be aware that variable effects on blood coagulation have been reported very rarely in patients receiving oral anticoagulants and chlordiazepoxide HCl.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit to smallest effective dosage (initially 10 mg or less per day) to preclude ataxia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally, making periodic blood counts and liver function tests advisable during protracted therapy.

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PRIMARY HYPERPARATHYROIDISM: REPORT OF FOUR CASES*

Gregory Naughton, M.D.**

Patrick S. McGreevy, M.D.**

Disease is very old, and nothing about it has changed. It is we who change, as we learn to recognize what was formerly imperceptible.

—Jean Martin Charcot (1825-1893)

Primary hyperparathyroidism as a diagnosis is relatively new; as a disease entity, it is no doubt old. The first detailed description of the gross and microscopic features of normal parathyroid glands in humans was done by a Swedish premedical student, Ivar Sandstrom in 1877. In 1925, Mandl of Vienna performed the first resection of parathyroid tumor for Von Recklinhausen's disease. A few years later, the clinical and chemical picture seen in this disease was delineated in much greater detail by the work of Aub, Bauer and Albright at the Massachusetts General Hospital.[1]

From the recent literature it is apparent that this diagnosis is being made more often. From January, 1942 till June, 1970, Charity Hospital of New Orleans, Louisiana, studied 100 patients with parathyroid tumors. In the last four and a half years, 47 cases were diagnosed, including parathyroid hyperplasia.[2] Haff and Ballinger have reported on 74 patients with primary hyperparathyroidism operated on at Barnes Hospital in St. Louis, Missouri, in the past four years. The prior ten years saw 39 such patients.[3] Preisman and Mehnert found 16 cases of hyperparathyroidism in two years at Mercy Hospital, San Diego, California.[4] The major reason for the apparent sharp increase in the number of cases of primary hyperparathyroidism is the 12 channel serum auto-analyzer. It is safe to assume that the use of the auto-analyzer will become more routine as time goes on and hence the incidence of recognized primary hyperparathyroidism will continue to rise. With this in mind, we wish to briefly present four cases we have seen in the past two years. The evaluation of the patient with hypercalcemia will be discussed as well as the use of Toludine Dye as an intraoperative means of identifying the parathyroid glands.

CASE REPORTS

Case I

R. K. is an 81 year old woman who was admitted to McKennan Hospital on November 26, 1969, with a chief complaint of weakness of several months duration. The weakness had reached the point that the patient was unable to stand or care for herself. Three months

*Presented at the annual meeting of the South Dakota Chapter of the American College of Surgeons, Sioux Falls, May 1, 1971.

**1320 South 8th Avenue
Sioux Falls, South Dakota

prior the patient had been admitted with the same complaint. The past history included an operation for a fractured femur, 11 months prior to this admission. In 1966, a diagnosis of anxiety reaction was made. In 1951, a cholecystectomy was performed. Physical examination was essentially negative except for obvious generalized weakness and dehydration. Initial laboratory studies included a 12 panel which showed a serum calcium of 11.6 mg.% and serum phosphorus of 3.2 mg.%. Repeat studies confirmed persistent hypercalcemia. Serum alkaline phosphatase was normal. Serum chloride was 107 mg.%. Following a period of steroid therapy the serum calcium was 11.2 mg.%, and the serum phosphorus was 2.4 mg.% A thorough evaluation for malignant disease was negative. On the ninth hospital day, surgical exploration of the neck was done and a single parathyroid adenoma was resected. One normal parathyroid gland was resected. The adenoma was at the upper right pole of the thyroid gland and measured 1.5 x .8 x .7 cm. in size. The postoperative course was uneventful. The patient had a good symptomatic response regarding her weakness. The final laboratory studies done 34 days postoperative, showed a serum calcium of 9.8 mg.% and a serum phosphorus of 3.5 mg.%.

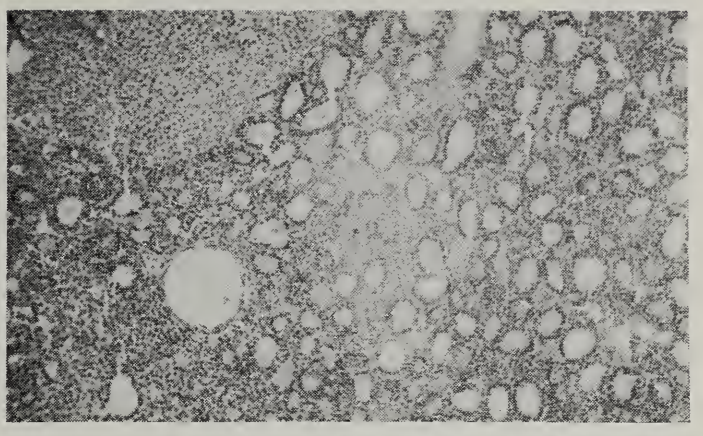
Case II

P. R. is a 65 year old woman admitted to the psychiatric ward of McKennan Hospital on December 17, 1970, with a chief complaint of inability to sleep, nervousness and depression. A medical consultation was obtained because of polyuria and polydypsia. Ten years prior to admission a partial gastrectomy was done for benign peptic ulcer disease. Eight years prior bilateral hip arthroplasties were performed. The patient said she was told that prosthetic devices could not be inserted because her bones were too soft. Two months prior to admission a diagnosis of involutional depression was made. Physical examination showed a woman who was withdrawn and depressed but without any specific abnormal findings, other than a gait abnormality secondary to bilateral hip arthroplasties. Laboratory data included several serum calcium determinations in the range of 11 to 12 mg.%. Serum phosphorus levels were 3.2 to 2.9 mg.%. Serum chloride was 107 mg.%. Radiographic studies noted osteoporosis of the spine and a possibly enlarged sella tursica. Neurologic examination and visual field determinations were normal. Urologic examination disclosed right hydronephrosis, secondary to a ureterocele, and duplication of the right collecting system. On the seventh day of hospitalization a neck exploration was performed and a parathyroid adenoma was resected. The adenoma weighed two grams and measured 3.4 x 1.4 x .8 cm. and was located at the left lower pole of the thyroid gland (Fig. 1). On the third postoperative day, the patient fell and broke her wrist. The patient's serum calcium and phosphorous were in the normal range the second day after surgery and at 6 months remained normal. The patient has had continued psychiatric therapy; however, the polyuria and polydypsia have completely stopped.

Case III

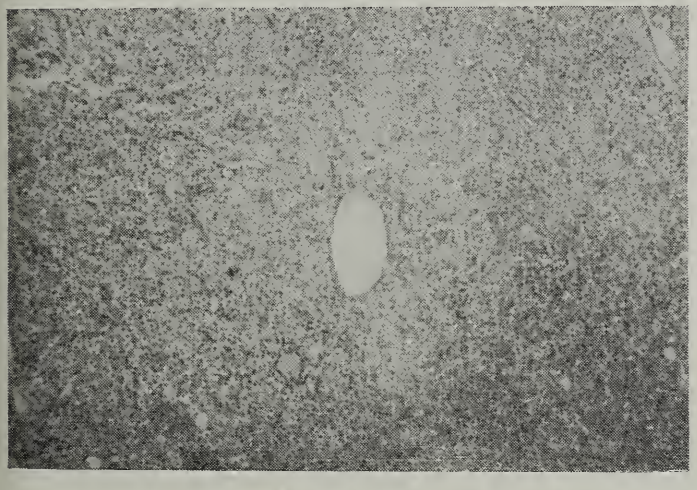
G. S. is a 51 year old woman, who was admitted to McKennan Hospital on April 19, 1971 for psychiatric treatment and evaluation of an elevated serum calcium. In January, 1971, the patient was admitted with a cellulitus of the left hand, secondary to an infected laceration. The patient had a previous diagnosis of adult onset diabetes, controlled with insulin. During this January admission, a 12 panel showed a serum calcium of 11.6 mg.% and a phosphorus of 2.7 mg.%. The hypercalcemia was not evaluated at that time. The past history of this woman included a diagnosis of psychoneurosis with depressive reaction which has required hospitalization on several occasions in the past 5 years. The remainder of the past history was essentially negative. Physical examination on admission in April, 1971, was unremarkable. Laboratory studies included serum calciums of 12.8 and 12.2 mg.% and serum phosphorus of 3.2 mg.% and 2.6 mg%. The serum chloride was 100 mg.%. No other laboratory or x-ray abnormalities were found except for the electrocardiogram, which showed possible old anterior infarction. On the eighteenth hospital day, a neck exploration was performed and a parathyroid adenoma was resected. The tumor was near the left upper pole of the thyroid gland and weighed 1.7 gm. and measured 2.3 x 1.3 x 1.0 cm. (Fig. 2). The patient had an uneventful postoperative course and her postoperative serum calcium and phosphorus determinations were in the normal range.

Figure 1



Left, gross specimen of a parathyroid adenoma, 3.4 x 1.4 x 0.8 cm., weight two grams. Right, microscopic section of the adenoma Case II).

Figure 2

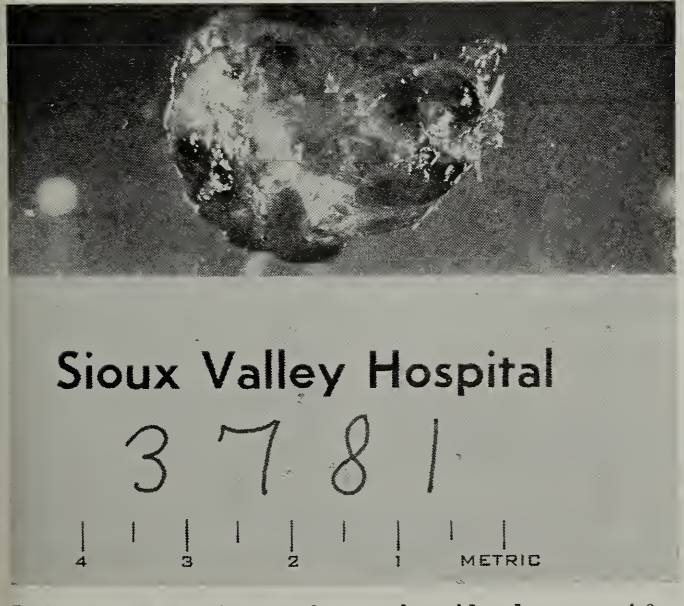


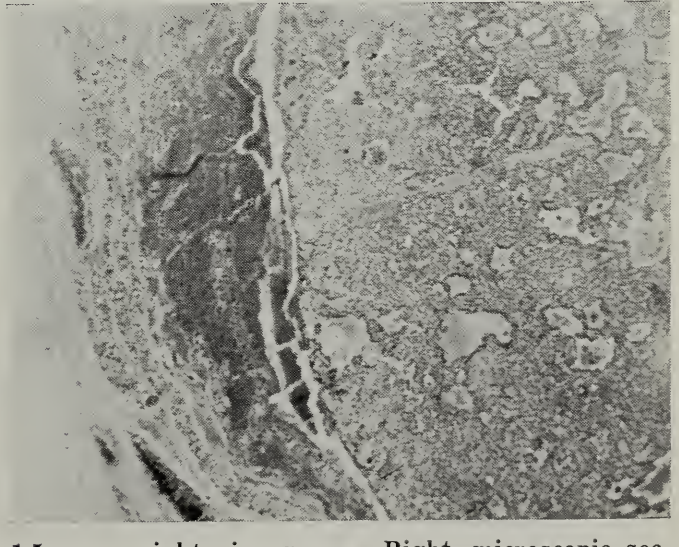
Microscopic section of parathyroid adenoma, oxyphile type (Case III).

Case IV

I. U. is a 54 year old woman who was admitted to Sioux Valley Hospital on August 4, 1971 for an evaluation of possible left renal colic. The patient said that for two weeks prior to admission, she had repeated episodes of left flank pain, occasionally severe in nature, and urinalysis revealing hematuria. In 1958, the patient was diagnosed as having right ureterolithiasis and cystoscopy was done. In 1962, a right pelviolithotomy was performed for removal of a renal stone. Past history also includes a subtotal thyroidectomy in 1947, for hyperthyroidism. In 1967, the patient was hospitalized for psychiatric treatment. The patient's mother had diabetes, and the patient was on Tolbutamide, 250 mg. daily, for adult onset diabetes. Physical examination was essentially negative. Laboratory studies on admission included a 12 panel, which revealed a

Figure 3





Left, gross specimen of parathyroid adenoma, 4.0 x 3.5 x 1.5 cm., weight nine grams. Right, microscopic section of the adenoma (Case IV).

serum calcium of 12.2 mg.% and a serum phosphorus of 2.7 mg.%. The alkaline phosphatase was elevated at 290 mU/ml. (normal 23-76). Serum chloride was 107 mg.%. Repeat serum calcium and phosphorus determinations remained at essentially the same levels. Radiographic studies revealed a stone in the left kidney. Mandible x-rays showed absence of the lamina dura. Studies of the hand noted mild subperiosteal bone resorption of the middle phalanges of the middle fingers. Electrocardiogram showed nonspecific ST-T wave changes. During this hospitalization, a stone was removed from the left ureter. The patient was discharged and returned to the hospital on September 13, 1971, for exploration of the neck. Operation on September 15, found a parathyroid adenoma at the right upper pole of the thyroid gland remnant. The parathyroid tumor measured 4 x 3.5 x 1.5 cm. and weighed nine grams (Fig. 3). Postoperatively the patient had an episode of acute gouty arthritis of the right knee, which responded to medical treatment. Her postoperative serum calciums were in the normal to below normal range. Laboratory values, 30 days postoperative, were serum calcium 7.2 mg.%, serum phosphorous 3.0 mg.%. The patient has had no symptoms of hypocalcemia and is not on calcium replacement.

Discussion

The diagnosis of hyperparathyroidism often conjures in the mind of the practicing physician, a complex picture of a moderately rare endocrine disease surrounded by many laboratory tests difficult in their performance and interpretation. In fact, however, this entity is a common endocrinopathy and the diagnosis can be established with a high probability by simple clinical evaluation.

The importance of careful consideration of the differential diagnosis is emphasized by the fact that no combination of laboratory tests can be relied on to assure the diagnosis with complete certainty. In fact, even in research centers where parathyroid hormone can be measured by radio-immunoassay, the laboratory tool fails to distinguish the source of detectable parathormone as definitely parathyroid tissue or a metabolically active neoplasm.

How then is the diagnosis accomplished by clinical means? The primary requisite is recognition of clinical situations deserving closer observation for investigation as outlined in Table I.

TABLE I

CLINICAL SITUATIONS DESERVING INVESTIGATION FOR HPT[5]

- Skeletal disease
  - Diffuse (metabolic) bone disease regardless of supposed type
  - Solitary bone cysts or tumors
- Renal disease
  - Nephrolithiasis, past or present
  - Nephrocalinosis
  - Unexplained impairment of renal function
- "Hypercalcemic symptoms"
  - Polyuria or polydipsia
  - Conspicuous fatigue and weakness or unexplainable gastrointestinal symptoms
  - Psychiatric disturbances
- Multiple endocrine adenomatosis
  - Pituitary tumor with or without acromegaly
  - Insulinoma
  - Zollinger-Ellison syndrome
  - Pheochromocytoma
  - Medullary carcinoma of thyroid with amyloid stroma
- Family history of HPT or any of above
- Peptic ulcer (especially if severe or atypical)
- Pancreatitis (especially acute pancreatitis without hypocalcemia)
- Parturient mothers of hypocalcemic neonates
- Presence of band keratopathy

In this day of the multiphasic blood chemistry screening tests, however, the initial clue to hyperparathyroidism may be entirely serendipitous. Boonstra and Jackson found hyperparathyroidism in one of every 834 patients, when calcium was routinely measured on all ambulatory patients admitted to their institutions.[6] However, clinical suspicion and awareness is still necessary, since we have observed elevated serum calciums on screening tests that have been ignored.

For practical purposes, the serum calcium is the sine qua non of diagnosis. In the experience of most, hypercalcemia is often intermittent rather than constant, so more than one level should be obtained where there is a strong clinical suspicion (refer to Table I).

When hypercalcemia is found, then the diagnosis of hyperparathyroidism is made by exclusion. First, laboratory error must be excluded as well as other artificial causes, e.g., a border-line normal value, thiazide therapy, or cathartic therapy. It must be emphasized, however, that calcium homeostasis is quite exact and minimally elevated calciums can be just as indicative of hyperparathyroidism as moderately or markedly elevated levels. Indeed, markedly elevated levels should alert one to the possibility of neoplasm. Hypercalcemic crisis is rare in hyperparathyroidism, but not so rare in hypercalcemia associated with neoplastic disease.

Once you are satisfied that you are indeed dealing with a hypercalcemic state, the differential diagnosis is actually quite brief (refer to Table II).

TABLE II

DIFFERENTIAL DIAGNOSIS OF HYPERCALCEMIA[7]

Primary hyperparathyroidism
Cancer with and without metastases
Multiple myeloma
Sarcoidosis
Milk-alkali syndrome
Hyperthyroidism
Immobilization in children and patients with Paget's disease

It can be seen that for most of these entities, a reliable determination can almost always be made by thorough clinical evaluation with the help of a few well chosen laboratory or diagnostic procedures.

The entity which is quite common, and perhaps the most difficult to exclude, is neoplasm. Skeletal metastasis may occur extensively in the absence of radiographic evidence, but radioistopic bone scanning can be helpful here. Also, more rarely, as noted above, some tumors can elaborate a parathyroid hormone-like substance indistinguishable from parathyroid hormone.

In practice then, we rely on the history and physical exam, along with thorough x-ray evaluation of the chest, G-I tract and G-U tract. Attention is also directed toward careful pelvic exam, pap smear and proctoscopic exam. Another helpful clue may be the serum electrolytes. The plasma chloride is usually above 102 mEq./L in patients with hyperparathyroidism and below that level in other forms of hypercalcemia. The direction of change is reversed with the plasma bicarbonate.

Once a diagnosis is established with high probability, the treatment is surgical excision. If there remains considerable doubt as to the diagnosis, delay and future evaluation is usually well justified. In the individual who cannot or will not become a surgical candidate for one reason or another, medical management is usually unsatisfactory, but occasionally it can cause remission or amelioration of symptoms. Medical therapy consists primarily of oral phosphate supplements, occasionally assisted by long-term testosterone therapy.

TOLUDINE BLUE DYE

In recent years there have been a series of reports describing the use of Toludine Blue Dye to identify parathyroid glands in general and adenomas in particular.[8-10] In the past, Toludine Blue (Tolonium Chloride) has been used for treatment for cyanide and carbon monoxide poisoning. It has an antagonistic action to heparin and has been shown to stain oral cancers. In 1964 it was noted in experimental animals that this dye stained the pancreas and parathyroid glands. Further investigation in humans found that the dye would stain both normal and abnormal parathyroid glands.[11] Adenomas tend to concentrate the dye to a greater degree and become a deep purple, while normal parathyroid glands, thyroid glands or thyroid cysts tend to stain a light blue.[10] Cardiac arrhythmia, transcient hypertension, methemoglobinemia and hemolytic anemia

have been reported as complications of this drug.[10,13] Following a plan outlined by Yeager and Krementz, a Toludine Blue Dye infusion was used in four patients in this report.[10] The solution was made in the hospital pharmacy by adding the dye to distilled water and heating to the boiling point. The solution was allowed to stand overnight before filtering through a coarse pressure filter. The filtered solution was placed in sterile containers and autoclaved at 105°C. for ten minutes. The dye was given in a dosage of 7 mg./kg. body weight. The dye was put into 500 cc. of normal saline and the infusion begun as soon as the patient arrived in the operating room. Prior to starting the infusion, the patient was connected to a cardiac monotor with oscilloscope. The infusion was continued until the adenoma was identified. In the first patient there was no evidence of any uptake of dye. The infusion was not started until the neck dissection had begun and this probably was not soon enough. In the second, third and fourth patients, the infusion was started earlier and in each case, the adenoma stained a deep blue color. No other tissue showed any evidence of any staining by the Toludine Blue. No complications from the dye were noted in any of the patients. In the first case, a normal parathyroid was biopsied. In the other cases, only the adenoma was identified histologically. The adenomas in this series were all of large size and probably could have been found without the dye, as in the first case, but there is no question the staining of the adenomas aided in the dissection in the neck and the identification of the tumor. Krementz, who recently reported on 100 cases of parathyroid tumors, now suggests that the dye be available and used if difficulty arises in finding the parathyroid glands, in second look operations, or in mediastinal explorations.[2] Other uses of the dye that have been suggested include identification of normal parathyroid glands when doing total thyroidectomies and using the dye as a vehicle for radioactive scan of the parathyroid glands.[14]

CONCLUSIONS

Four cases of primary hyperparathyroidism have been presented and the diagnostic approach discussed briefly. It is apparent that the use of the auto-analyzer is making this diagnosis more common. The use of the Toludine Blue Dye staining to identify the parathyroid glands has also been discussed.

The assistance of the pathology departments of McKennan and Sioux Valley Hospitals in obtaining photographs is gratefully acknowledged.

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CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

GREGORY M. NAUGTON, M.D.*
Internist - Discusser

JOHN F. BARLOW, M.D., FCAP**
Pathologist - Editor

TWENTY-EIGHT YEAR OLD FEMALE WITH SUDDEN ONSET OF HEMIPLEGIA

CASE NO. A70-71

This 28-year old mother of three living children entered Sioux Valley Hospital because of sudden onset of weakness of the left arm and leg the night prior to admission.

Eight months prior to admission, after delivery of her third child, a papanicolaou smear class IV was found. There was a hard lesion on the anterior cervix which was biopsied. A poorly differentiated adenocarcinoma was found infiltrating all areas of the cervical cone and endometrial curettings. The tumor invaded the parametrium but not to the pelvic wall. She was treated with 80 mg of radiation insertion into the cervix and external cobalt therapy. She had been well since her radiation except for fleeting pains and weakness in the legs and both arms for the last month. She had had thrombophlebitis of the legs in the past year, but had been on no oral progestational agents since prior to her radiation. There was no skin rash.

One week prior to admission, she was treated with antibiotics for a cough and rales in the chest. The night prior to entry, she developed sudden weakness of the left arm and leg, and fell to the floor. She was helped up by her husband. She complained of some pain in the left shoulder. There was no history of headache or diplopia. There was a fever by history for the past day.

PHYSICAL EXAMINATION: Temperature - 99.2; pulse - 104/minute and regular; respirations - 36/minute and regular; blood pressure 110 systolic, 64 diastolic; height - 5 feet and 7 inches; weight - 206 pounds. The patient had obvious weakness of the left side of her face and slurred speech; seemed oriented to time and place, but slightly confused. The pupils were round and equal and reacted to light. The visual acuity was normal and gross confrontation showed no defect in visual fields. There was papilledema of both discs and marked venous engorgement and peripapillary hemorrhages. The thyroid was not palpable. There were no cervical lymph nodes or dilated veins. There was marked paresis of the left lower extremity and complete flaccid paralysis of the left upper extremity. The abdominal reflexes were absent. Reflexes were 1+ on the right and 2+ on the left. The plantar reflexes were flexor. The sensation to pinprick and light touch was intact except for mild hyperesthesia in the right upper extremity.

Examination of the lungs revealed rales in both bases posteriorly. The heart was not enlarged. There was a regular sinus rhythm with no murmurs. Examination of the abdomen showed no masses, spasm or tenderness. However, one observer felt a vague epigastric fullness. The pelvic examination showed no residual tumor. There was some mild duration in the vaults bilaterally, but no pelvic mass. Rectal examination was negative.

CLINICAL PATHOLOGY DATA: Admission urinalysis - straw colored, clear, specific gravity - 1.008, negative for protein, glucose, ketone bodies, hemoglobin, and bile. There were

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1-3 red cells/hpf, and occasional epithelial cells. Admission hemoglobin was 8.0 gm/100 ml, red count - 3.28 million/mm^3, hematocrit - 26 Vol%, mean corpuscular hemoglobin - 25 micromicrograms, mean corpuscular volume - 79 cubic micra, and mean corpuscular hemoglobin concentration - 31%. Total leukocyte count 9,500/mm^3 with 88% segmented neutrophils, 3% neutrophilic bands, 1% eosinophils, 7% lymphocytes, and 1% monocytes. The red cells showed slight anisocytosis and polychromasia. The platelets were adequate on smear. Erythrocyte sedimentation rate was 70 mm/hr. Platelet count - 222,000/mm^3. Prothrombin time 14.0 seconds with an 11.0 second control. Partial thromboplastin time 45 seconds with a 34 second control. Total protein, total bilirubin, serum glutamic oxaloacetic transaminase, alkaline phosphatase, calcium, sodium potassium, uric acid, blood urea nitrogen, cholesterol, and glucose were within normal limits. Lactic dehydrogenase was 105 units (normal 34-72 units). Serum iron was 33 micromicrograms/100 ml., iron binding capacity - 240 micrograms/100 ml., percent saturation - 14%. Stools for occult blood were negative. Serum electrophoresis showed total protein 7.4 gm/100 ml. with albumin 1.6 gm/100 ml, alpha - 1 globulin - 0.7 gm/100 ml., alpha-2 - 1.3 gms/100 ml., beta globulin - 1.6 gm/100 ml., and gamma globulin 1.2 gm/100 ml. The increased globulin was in a polyclonal peak. Cerebrospinal fluid showed an opening pressure of 245 mm of H_20 and was clear. There were 1,030 red cells/mm^3 and one mononuclear white cell/mm^3. The protein was 28 mgs/100 ml. The gamma globulin was increased at 12.0 mg/100 ml. (normal up to 5 mgs). The serology was nonreactive. Brain scan showed mottled increased uptake right above the ear. Chest films showed haziness of the left base. Multiple LE preps and antinuclear antibody tests by fluorescence and latex fixation were negative.

Shortly after admission, the patient developed intermittent spiking fever from 101-103°F with rales in both bases. The fever did not respond to antibiotics. She also developed a migratory thrombophlebitis with involvement of both upper and lower extremities. She also became progressively obtunded. Gangrene developed in the second toe of the right foot and the pulses in the lower extremities were noted to be weak but equal. Muscle biopsy revealed chronic focal myositis. Skin biopsy was negative. Because of the above, she was started on prednisone up to 150 mgm daily. The fever subsided and sensorium and slurred speech improved slightly. She developed a perirectal abscess which grew E. Coli. There was recurrence of fever and leukocytosis on the thirty-ninth hospital day. She continued to be anemic at the level of 7-9 grams in spite of three transfusions. The leukocyte count ranged from 17,000 to 22,000/mm^3 with a shift to the left and toxic granulation of the polys. Multiple blood cultures were negative. Urine culture showed no growth in 48 hours.

In the last two weeks prior to death, she showed coldness and mottling of the feet with gangrene of the toes on the right. The pulses in the lower extremities were not felt. She developed striae and moon facies secondary to steroid therapy. She died on the ninety-fifth hospital day.

DR. GREGORY NAUGHTON: On review, we have found a young female with a past history of adenocarcinoma of the cervix. There was a catastrophic illness followed by multisystem disorder which progressed to death. I have chosen to discuss this case as the differential diagnosis of stroke syndrome in a young patient. Atherosclerosis of the cerebral vessels is the leading cause of the stroke syndrome but would have to be considered a remote possibility in this very young patient, especially without the predisposing disorders of hypertension, diabetes, or familial lipid disorder. Ingestion of oral progestational agents, which have been linked to the stroke syndrome in many young women in many recent articles, was not a factor in this case. The prime candidate as a cause of the stroke syndrome in a young patient is probably a ruptured saccular aneurysm. However, this is ruled out by the grossly clear spinal fluid which only showed microscopic red cells.

Therefore, of necessity, we have to turn from the common causes of the stroke syndrome to the uncommon causes. We can dismiss some of the following causes of stroke syndrome by the information we have in the protocol. One is cerebral thrombophlebitis which is usually seen secondary to infection of the middle ear or the paranasal sinuses or secondary to a meningitis. It can also be seen in patients in the postpartum state, with general debility or in cardiac failure.

Infectious arteritides such as pyogenic arter-

itis or rare form of arteritis due to syphilis, tuberculosis, or fungi such as mucor causing arteritis or even arteritis due to trichinella spiralis are possibilities but very unlikely ones.

A third category would be hematologic disorders. Among these would be polycythemia, rubra vera, sickle cell disease, paraproteinemias, disseminated intravascular coagulation, idiopathic thrombocytosis, thrombotic thrombocytopenic purpura (TTP), idiopathic thrombocytopenic purpura (ITP). These are unlikely.

Trauma, dissecting aneurysm, or acute systemic hypotension such as would occur with acute blood loss or myocardial infarction are also unlikely. The syndrome of migraine with aura but persisting deficit is also unlikely. Hypoxia and complications of arteriography can also produce the symptoms present in this case but are unlikely.

In summary, there can be a long list of conditions causing the stroke syndrome in young patients. I would like to mention aortic arch syndrome, sometimes referred to as Takayasu's disease. This is often also referred to as young female's arteritis. However, these patients often present with no pulses in the upper extermities and with a much different clinical presentation than our case of today. Therefore, this pulseless disease is also an unlikely possibility.

I would now like to discuss some causes of stroke that cannot be so easily excluded. I would like to share with you a table which I have taken out of an article entitled "Nonatherosclerotic Causes of Stroke" by Jonathan Levine and Philip D. Swanson of the University of Washington, School of Medicine at Seattle. They discussed 21 cases of completed ischemic strokes of unusual causes occurring in patients 15-45 years of age. They accumulated these cases over a 10 year period from 1959 to 1968. They excluded the cases related to atherosclerosis, berry aneurysm or with the stroke related conditions we referred to above. They had 21 cases. (Table I.)

Now let us turn our attention to the case of today. When I discussed the arteritides above, I purposely left out the type arteritis associated with the collagen diseases, such as those associated with rheumatoid arthritis, systemic lupus erythematosis scleroderma or the entities granulomatous angiitis, allergic vasculitis, periarteritis nodosa, and giant cell arteritis. From this list I would choose systemic lupus erythematosus or periarteritis nodosa. Both of these diseases in their florid manifestations could produce the clinical picture that we saw in this young lady. Central nervous system involvement is likely to be present in 75% of the cases of systemic lupus erythematosus and 45% of the cases of periarteritis nodosa. Central nervous system involvement is usually not the presenting symptom in either of these conditions, but may be. However, this patient also rapidly developed multiple system manifestations. She had cough, rales, abnormal chest X-ray, migratory thrombophlebitis, fever, anemia, marked elevation of the sedimentation rate, and gangrenous changes in the extremities. She also had a biopsy of muscle which showed a myositis. This group of manifestations could be due to either systemic lupus erythematosus or periarteritis nodosa. The age and the sex suggests lupus erythematosus but there are several disturbing features—the multiple negative LE preparations, negative latex agglutination tests for antinuclear factor and, in particular, the negative fluorescent antinuclear antibody tests.

TABLE I

Cause	Male	Female
Migraine	2	2
Systemic lupus erythematosus	—	2
Ulcerative colitis with pyoderma	1	—
Rheumatic heart disease	2	3
Subacute bacterial endocarditis	1	—
Atrial myxoma	—	1
Air embolus	1	—
Idiopathic thrombocytosis	—	1
Unknown	1	1
	—	—
	9	12

The fluorescent test is more nonspecific but is positive in virtually all of the cases of systemic lupus erythematosus. The LE preparation is more specific, but can be negative in up to 25% of the cases of lupus. Periarteritis nodosa, while it has a male predominance of 2:1, is a very difficult diagnosis to make premortem. The diagnosis must be made histologically from a biopsy of skin, subcutaneous tissue or muscle. In an article by Maxener and McDonald in the **Surgical Clinics of North America,** they found only 13% of 136 biopsies positive in 106 patients suspected of having periarteritis nodosa. In fact, only 30% of biopsies were positive in 26 patients

found to definitely have periarteritis nodosa.

Finally, even if you have a positive biopsy, there must be an appropriate clinical picture because the same histologic findings may be seen in several diseases. The fulminating course to early death and the resistance to massive steroid therapy also suggests a diagnosis of periarteritis nodosa. Gangrene and loss of pulses, of course, are also suggestive. The absence of hypertension does not deter me from making a diagnosis. I was always taught that there was a triad of fever, hypertension, and abdominal pain in a young man as being diagnostic of periarteritis nodosa. I only mention this to discourage its use because the manifestations of periarteritis nodosa are so great that often this trend is not present. In concluding, I want to mention two diseases which always plague a person who is discussing a CPC. These are tuberculosis and malignant tumor. I have no evidence of tuberculosis. The patient did not have a PPD skin test. The chest x-rays certainly did not suggest tuberculosis. I often like to get a tuberculin skin test before starting a patient on steroid therapy; but I must admit, I have no evidence for this diagnosis at all. I have no concrete evidence for malignant tumor, but I hate to dismiss this diagnosis too lightly in view of the fact that the patient had carcinoma of the cervix eight months previously, even if it were adequately treated. Hemorrhage into a metastatic brain tumor could easily give us the presenting clinical picture that this lady had. Malignant tumors are also quite capable of causing the picture of migratory phlebitis and polymyositis. Fever, anemia, and elevated sedimentation rate would also be present. In short, there could be complete mimicry of a multi-system disease. A repeat brain scan later on in the disease might have helped establish this diagnosis, especially in view of the interpretation on the original brain scan. However, the patient may have been far too sick for this procedure.

DR. NAUGHTON'S DIAGNOSIS

1. PROBABLE ARTERITIS SECONDARY TO COLLAGEN DISEASE
2. PERIARTERITIS NODOSA

DR. BARLOW: Mike, what do you think about this case?

*DR. MICHAEL BROWN: I cannot dismiss the history of malignant tumor. It is hard to explain exactly why the patient presented with this sudden hemiplegia, but as you say, bleeding into a metastasis may be the answer.

DR. NAUGHTON: I agree. I certainly cannot exclude this diagnosis. One thing that would deter me from making the diagnosis of metastatic brain tumor is her lack of response to steroid therapy. When you have a patient with metastatic tumor with surrounding edema and give the patient even small doses of steroid (15-20 mg of Prednisone) you get a dramatic response. It is short-lived, but there is usually a good initial response. I have seen patients who were aphasic get up and walk within 24-36 hours with metastatic brain tumors after steroid therapy.

**DR. W. O. ROSSING: Did this patient have a murmur at anytime during her illness?

†DR. EVERETT W. SANDERSON: No. I never did hear a murmur.

DR. ROSSING: I was wondering whether the patient could have had a verrucous endocarditis with embolization, probably secondary to a collagen disease. This embolization would explain the acute neurological onset.

DR. SANDERSON: This patient was improving for a time and was, in fact, up and walking around but then developed more fever.

DR. NAUGHTON: I might say that steroids are always a double-edged sword and the patient did develop an abscess, perhaps secondary to steroid therapy.

DR. SANDERSON: There are a couple of important aspects of this case which were probably hard to dig out of the chart and put on the protocol. The patient did improve some. My diagnosis was also collagen disease, possibly secondary to malignancy. She was put on steroids after we got the muscle biopsy which showed a myositis. I suspected that she had the myositis secondary to her malignancy. Late in the course of the disease, I did a pelvic again

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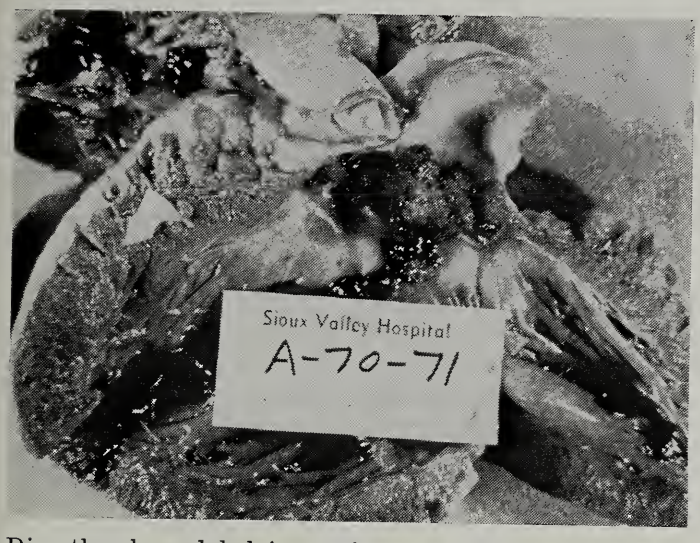
and thought that there was a fixation in the pelvic structures with evidence of local recurrence of the tumor and perhaps a developing abdominal mass which I thought was the liver.

Figure I.

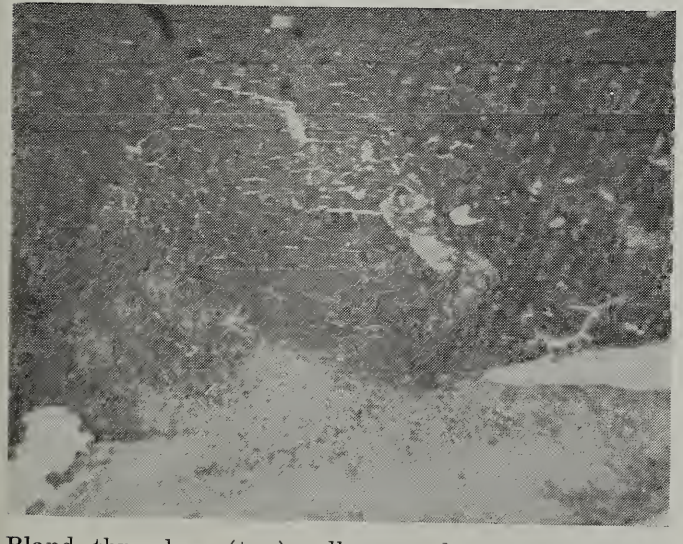


Directly above label is aortic valve covered with massive vegetation.

PATHOLOGIC FINDINGS

DR. BARLOW: The most striking findings at autopsy were in the heart. This is a picture of the huge vegetation on the aortic valve and there were similar vegetations on the mitral valve. (FIG. I) Culture of these revealed no growth. These microscopic sections explain why there was no growth. (FIG. II). You will note that there is no inflammation about the valve or in the thrombus. Therefore, that is a case of so-called non-bacterial thrombotic endocarditis or marantic endocarditis. The patient's brain symptoms were due to the fact that she had emboli to the brain with cerebral infarction. She also had emboli to the right lower extremity with gangrene of the toes and to the spleen with acute infarction. This is the picture of the spleen. (FIG. III)

Figure II.



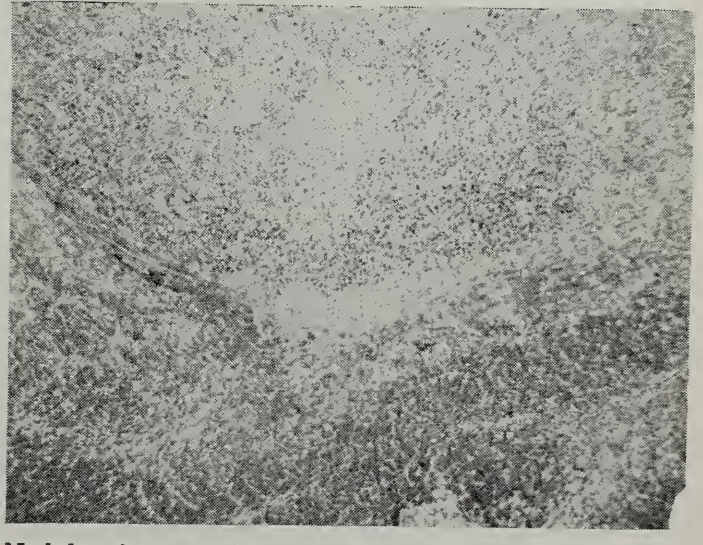
Bland thrombus (top) adherent the valve substance (bottom). Note absence of inflammation ruling out a bacterial infection.

Figure III.

Light band-like area is an embolic infarct of spleen.

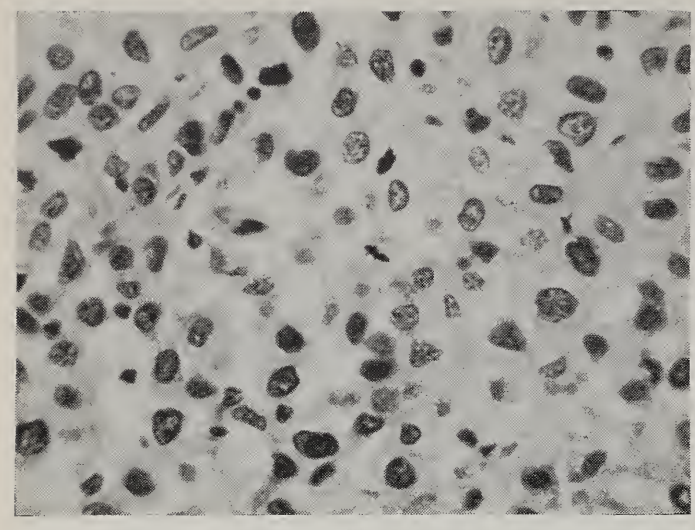
Non-bacterial thrombotic endocarditis is usually associated with metastatic carcinoma and the patient did have recurrent carcinoma with massive involvement of retroperitoneal lymph nodes and liver. The following pictures show the tumor in the liver. (FIG. IV & V) There was some tumor in the pelvis and in the adrenals. There was a very small brain tumor which would not have been picked up on the brain scan. The cerebral symptoms were certainly due to the right middle cerebral artery embolus and acute infarction.

Figure IV.



Nodule of tumor (above) in liver (below).

Figure V.



High power of poorly differentiated carcinoma. Mitosis is in center of field.

FINAL DIAGNOSIS

1. **Adenocarcinoma of the cervix (eight months previous treated with radiation)**
2. **Metastatic carcinoma with involvement of:**
   - **A. Retroperitoneal lymph nodes, massive**
   - **B. Liver, massive**
   - **C. Tubes and ovaries, bilateral**
   - **D. Peritoneum of pelvic and mesentary**
   - **E. Adrenals, bilateral**
   - **F. Brain, small**
3. **Hydronephrosis of right kidney**
4. **Compression of right ureter with hydroureter due to carcinoma**
5. **Non-bacterial thrombotic endocarditis involving aortic and mitral valves with emboli to:**
   - **A. Right middle cerebral artery with acute infarction of right cerebral hemisphere**
   - **B. Spleen with acute infarction**
   - **C. Right lower extremity with gangrene of toes**
6. **Cushing's syndrome with striae, moon facies secondary to steroid therapy**
7. **Pulmonary congestion with edema**

This disease of non-bacterial thrombotic endocarditis is most often described in patients with recurrent or disseminated malignancy such as the one we have noted. It has often been said that it is common after adenocarcinoma (which this patient had), particularly of the mucous-secreting variety. The disease is not uncommon, but because disseminated malignancy in the past has been terminal, there has not been a great deal of attention paid to it. However, in such cases as the one we have today, a troublesome differential diagnosis can arise. The patient may not be known to have metastatic disease as in this case. Also, with the prolonged survivals in patients with carcinoma, seen with modern therapy, we would expect to see more of this disease. I should also note that non-bacterial thrombotic endocarditis can occur in any debilitated patient, although it is more common in cases of carcinoma.

*DR. BILL NELSON: Did muscle biopsy show a rather extensive myositis or was this just focal?

DR. BARLOW: I probably should have gotten you a picture of this, but there was some definite myositis with phagocytosis of fibers, and I suspect this was secondary to her malignant process. It was focal.

DR. EVERETT SANDERSON: Yes. I was hoping you would say something about this. I think that any time you have a patient with weakness and you go on to make the diagnosis of myositis by biopsy, you must exclude, particularly in the older age groups, an occult tumor. The disease is probably a lot more common than we realize. This is because probably many patients with malignant tumors have this, but we do not particularly notice the increasing muscular involvement.

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Council on Occupational Health

PHYSICIAN'S GUIDE TO THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

EDITOR'S NOTE: This article is reprinted as a follow-up to the editorial entitled, "The Occupational Safety and Health Act . . ." by John B. Gregg, M.D., which appeared in the March issue of the South Dakota Journal of Medicine.

The Williams-Steiger Occupational Safety and Health Act of 1970 has created increased demands for professional-medical advice in setting up new or enlarged employee health and safety programs in both large and small employee groups.

The American Medical Association supported this legislation, with full realization that the federal government alone has inadequate resources for either administration or enforcement of all its provisions. Only by efforts at community levels by business, labor, voluntary organizations, the health professions, and local and state government can the purpose of the Congress be really implemented. Preventive medicine has a major role to play in these efforts.

Most physicians have limited information concerning the following aspects of such programs: (a) surveying hazards at the workplace; (b) teamwork with industrial nurses, safety engineers, industrial hygienists, and environmental testing laboratories devoted to controlling hazards to employees in industry; (c) diagnosis and treatment of occupational diseases; (d) selective screen examinations for placement of workers on jobs appropriate to their health status; (e) knowledge of exposure standards for chemical and physical agents hazardous to the worker; (f) medical evaluation of impairment of injured or convalescent workers returning to employment; (g) community rehabilitation resources and how to use them; and (h) reporting and recording systems for developing accident and disease frequency statistics as well as epidemiology studies in an employee population.

The guide describes the new legislation, and attempts to orient the physician to its medical and safety components.

THE WILLAMS-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 PUBLIC LAW 91-596

1. **Purpose.**—"To assure so far as possible every working man and woman in the nation safe and healthful working conditions."

2. **Coverage.**—All businesses engaged in interstate commerce that have one or more employees.

3. **Employer Duties.**—Each employer shall furnish a work place free from recognized hazards by complying with occupational safety and health standards.

4. **Promulgation of Standards.**—The Secretary of Labor shall promulgate consensus standards adopted by standards-producing organizations, established federal standards, emer-

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gency temporary standards, and, after hearings, other applicable standards. The US Department of Health, Education and Welfare will assist in developing criteria for new standards. Many of the interim standards have already been published in the **Federal Register** and many more will appear in the future.

5. **Enforcement.**—The US Department of Labor is responsible for inspections of the work place, the issuing of citations for alleged violations of standards, and enforcement of this act, including penalties. The administration of the act is directed by an Assistant Secretary of Labor for Occupational Safety and Health, who heads an Occupational Safety and Health Administration (OSHA) in the Department of Labor. An independent review commission and the US Court of Appeals is available for adjudication of citations contested by the employer. Temporary variances from a standard can be obtained for periods of a few months on proof of unavailability of personnel, equipment, or time to alter facilities to meet the standard promptly. Also, employees may apply for a variance if they believe that their standard is as good or better than the promulgated standard. An injured employee may sue the Secretary of Labor for arbitrary failure to enforce in cases of "imminent danger." A plant can be shut down by a court order if imminent danger of death or physical harm is proved.

6. **Participation by States**—State agencies can assist the Department of Labor in inspection and enforcement for an interim period until the Department of Labor is mobilized to take over these functions. Thereafter, states can continue such administration only if a state plan, accepted by the Secretary of Labor as equivalent to the federal standards, and state enforcement is set up. Federal grants are available to the states for financing and development (90%) and administrative (50%) of such approved plans.

7. **Other Laws.**—The statute provides for immediate enforcement of standards already applicable to the existing Walsh-Healey Public Contracts Act, the Service Contract Act, the National Foundation on Arts and Humanities Act, the Longshoremen's and Harbor Workers' Compensation Act, and the 1969 Construction Safety Act. The same standards apply to all. The Coal Miner's Safety and Health Act and the Atomic Energy Act are administered by other federal departments. Otherwise, local, state, and federal government employees and strictly intrastate enterprises are the principal establishments not subject to the enforcement provisions of the new Act by the Labor Department.

8. **Records.**—Under regulations prescribed by the Secretary of Labor, employers are required to keep records and make periodic reports on all work related injuries, deaths, illnesses, and exposures to toxic agents, except for minor injuries requiring only first-aid treatment. Details of these regulations and record forms have been published and can be obtained from the ten regional offices of OSHA. Some of these record forms contain requests for information which only the treating physician can be expected to provide.

9. **US DHEW.**—A National Institute for Occupational Safety and Health (NIOSH) has been established in the DHEW to recommend standards, perform experiments and research on hazards, publish a list of toxic substances, provide educational programs to train qualified personnel to administer the act, and teach employers and employees how to prevent occupational injuries and illnesses. Regional offices of NIOSH are available for consultation and advice to employers.

10. **National Advisory Committee on Occupational Safety and Health.**—The Department of DHEW appoint a 12-man National Advisory Committee to advise and recommend policies to both secretaries in administering the act.

11. **National Commission on State Workmen's Compensation Laws.**—A 15-member presidentially-appointed National Commission on State Workmen's Compensation Laws was created to conduct a comprehensive evaluation of these laws, and to report conclusions and such recommendations as it deems advisable, by July 1972. Nothing in the act, however, supersedes or affects any workmen's compensation law.

MEDICAL IMPLICATIONS

The broad coverage of the act, estimated to involve 57 million workers in perhaps 4.1 million business establishments, who in a year suffer 14,000 deaths and 2 million disabling injuries or diseases, emphasizes that almost all physicians in the United States will be affected and involved in one way or another.

Prevention of even a moderate proportion of these deaths and disabilities is a goal toward which the medical profession, along with all constructive elements in US society, private as well as governmental, can join hands.

In addition, any physician who himself employs one or more workers is subject, **as an employer,** to the provisions of the act if he uses materials or supplies carried in interstate commerce. Details of his responsibilities as an employer can be found in OSHA's "Handy Reference Guide to the Williams-Steiger Occupational Safety and Health Act of 1970."

SPECIFIC AND GENERAL TASKS FOR THE PHYSICIAN

In implementing the provisions of the act, the physician will play a primary role in defining and recording work-related deaths, injuries, and illnesses. He will provide necessary information to the employer about medical conditions requiring treatment, or which involve loss of consciousness, restriction of work or function, or transfer to another job. He will try to confirm or refute exposure to potentially toxic materials or harmful physical agents. He will be asked to examine before employment or thereafter those recurrently exposed to occupational health hazards. He may be asked to share results of his tests with the worker's own physican. While these are familiar roles for industrial physicians, the new law also formalizes these tasks for other physicians in the universal objective of better proctection of employees at the work place.

Whenever a physician is consulted by a worker with an occupational injury or disease, the employer should be immediately advised of the situation. If the employer requests advice of the physician about pertinent health problems at the work place, the physician should try to assist him in contacting appropriate community or professional resources for consultation on these problems. Such resources may include, medical, toxicological, industrial hygiene, and safety engineering societies; local, state, or federal health or labor departments; toxicological laboratories; safety councils; or regional offices of NIOSH or OSHA.

Mobilization of personnel at all levels has proceeded rapidly. Short courses to train compliance officers (inspectors) and administrators are in process. The legislation has stimulated the development of safety committees and medical departments in many small industries and labor unions that had none previously. Industrial nurses are at a premium; safety engineers and industrial hygienists are in short supply; and physicians are being approached to advise managements how to improve the health maintenance of their work force. Physicians are already being called on by employers to provide unusually careful records of the apparently causative circumstances of work-related injuries and diseases seen in their practices.

The specific types of records required of an employer are described in OSHA's "Recordkeeping Requirements Under the Williams-Steiger Occupational Safety and Health Act of 1970." This pamphlet also lists locations of OSHA's regional offices, and all the information in the above-mentioned "Handy Reference Guide." Inasmuch as the required records include detailed descriptions of the injury or illness, the part of the body affected, and categories under "Illness Codes," the employer will often need the attending physician's assistance in interpreting the definitions supplied on the back of OSHA Form #100, "Log of Occupational Injuries and Illnesses," for purposes of annual summaries and statistics. Each physician should, therefore, obtain a copy of "Recordkeeping Requirements" and familiarize himself with its contents. He is urged also to keep in his own case records information sufficient to meet the requirements of the act.

With regard to problems of confidentiality of records, the AMA House of Delegates approved in 1960, in its "Scope, Objectives and Functions of Occupational Health Programs," the following statement: Disclosure of information from an employee's health record should not be made without his consent, except as required by law." This statement is supplemented in the AMA Council on Occupational Health's "Guiding Principles of Medical Examinations in Industry" by the following: "The employer should be notified of potentially harmful work environment detected through examination," and "Governmental agencies, such as courts, workmen's compensation commissions, or health authorities should be supplied with information on official order or when required by law."

Many physicians need orientation in this field of preventive medicine, especially for those small industries in their communities which have no previously developed resources.

Large industry has the benefit of three to four decades of experience in organizing sophisticated medical and safety departments well adapted to prevention of occupational injuries and diseases. But these departments cover only about 25% of the nation's workers. This long experience has demonstrated the effectiveness of large companies' programs by steady reduction of accident rates and lessening of absenteeism, labor turnover, disability and occupational disease. This challenge of the present situation is to extend these benefits to small business and industry and to the workers in millions of enterprises who lack such programs.

BASIC REFERENCE RESOURCES

Basic texts from a variety of public and private agencies can furnish to the community physician the scientific resources he needs to become informed on the elements of preventive programs that have been tested and proved in large companies, in professional associations, government agencies, and voluntary groups:

Council on Occupational Health, American Medical Association, 535 N. Dearborn St., Chicago 60610 (Single copies available without charge)
- Scope Objectives and Functions of Occupational Health Programs
- Guiding Principles of Medical Examinations in Industry
- Guide to Small Plant Occupational Health Programs
- Surveying Hazards in the Occupational Environment
- Personal Protective Equipment for Employees in Industry
- Guide to the Significance of Occupational Exposure Limits
- Guide to the Development of Company Medical Policies
- Role of Medicine Within a Business Organization
- Guide for the Development of Medical Directives for Occupational Health Nurses
- Publications List

American Industrial Hygiene Association, 210 Haddon Ave., Westmont, NJ 08108
- Hygienic Guides of American Industrial Hygiene Association

Industrial Medical Association, 150 N. Wacker Drive, Chicago 60606
- Occupational Health Bookshelf, 1968
- Journal of Occupational Medicine
- Publications List

National Safety Council, 425 N. Michigan Ave., Chicago 60611
- Accident Prevention Manual for Industrial Operations, 6th ed, 1969
- Fundamentals of Industrial Hygiene, Olishifski and McElroy, 1971
- Many special publications for certain industries

American Conference of Governmental Industrial Hygienists, 1014 Broadway, Cincinnati 45202
- Documentation of Threshold Limit Values, revised ed, 1971
- Threshold Limit Values of Airborne Contaminants, 1971

American Association of Industrial Nurses Inc. 79 Madison Ave, New York 10016
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US Department of HEW, Public Health Service, Institute of Occupational Safety and Health, 1014 Broadway, Cincinnati, 45202 (or through regional offices of NIOSH)
- Occupational Diseases, A Guide to their Recognition, PHS, publication 1097, 1964, US Government Printing Office, Washington, DC 20402

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- Handy Reference Guide to the Williams-Steiger Occupational Safety and Health Act of 1970
- Recordkeeping Requirements under the Williams-Steiger Occupational Safety and Health Act of 1970.

American Public Health Association, 1015 18th St, Washington, DC 20036
- Local Health Official's Guide to Occupational Health, 1968

Textbooks:

Guides to the Evaluation of Permanent Impairment. Chicago, American Medical Association, 1971

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ORGANIZING OCCUPATIONAL SAFETY AND HEALTH PROGRAMS

By assiduous use of such technical reference materials as the foregoing, the general physician can develop with the cooperation of company management and labor groups acceptable preventive medical and safety programs for small industry that may be potentially as effective in injury and occupational disease control as those of large corporations. The part-time industrial physician, supervising one or more in-plant industrial nurses, should improvise surveys of potential plant hazards by utilizing available community resources, such as local medical directors, industrial hygiene consultants, safety engineers, and toxicological laboratories, where the company is not large enough to afford a full-time complement of such personnel and services. State or county health departments or departments of labor and industry frequently furnish such services on request, and local professional associations—in medicine, nursing, and industrial hygiene—or safety councils, are usually helpful in suggesting available resources. Occupational health committees of state medical societies increasingly provide such advisory services or route inquiries through the AMA Council on Occupational Health.

Few enterprises in medicine provide more human satisfaction to the physician than those which raise the health level of his community through prevention. Now that national legislation has keynoted the issue, many new opportunities for community-wide control or hazards will arise. Voluntary compliance with health and safety standards is preferable to enforcement measures, though threat of the latter will unquestionably motivate many employers to comply. The immediate problem is safety education, of workers, management, and the community. All physicians can make a useful contribution by becoming informed, by setting examples of safe procedures for their own employees, by studying work-related causes of injuries in their own practices, and by alerting employers to such observed hazards. Every physician who treats work injuries and diseases is to that extent an industrial physician and shares the chance to prevent other similar injuries by follow-up of whatever unsafe practice may have caused a particular accident.

If the community becomes aware that the medical profession is really concerned about control of occupational injury and disease, the whole program will be strengthened. Local and state medical societies should become involved in work-safety campaigns, provide speakers for safety councils, labor unions, and service clubs, and accept leadership in local or company committees that study methods of improving safety performance and controlling occupational disease hazards. Primary prevention can reduce society's burden of rehabilitation and compensation or welfare costs for the injured, and many human tragedies to workers and their families. Voluntarism by physicians and other health leaders can diminish the need for enforcement measures by governmental agencies. This opportunity is a challenge to the medical profession.

STATUS REPORT ON THE OCCUPATIONAL SAFETY AND HEALTH PROGRAM IN SOUTH DAKOTA
February - 1972

Prepared by
SOUTH DAKOTA STATE OFFICE OF COMPREHENSIVE HEALTH PLANNING

1. INTRODUCTION

The South Dakota State Department of Health initiated an Occupational Health Program in late 1940 and established an Occupational and Radiological Health Section within the Department in 1954. Legal authority for this program is contained within the General Public Health Law (SDCL 1967-Chapter 34).

An occupational health survey was conducted in South Dakota by the Health Department in 1957. Budget requests to establish programs directed at prevention of hazardous occupational exposures found during the survey

were not funded. Consequently, the program was limited primarily to evaluation of employee complaints and provisions of technical consultation on a request basis.

II. EFFECT OF FEDERAL LEGISLATION

Passage of the Federal Williams-Steiger Occupational Safety and Health Act in 1970 placed responsibility for provision of these services within the U. S. Department of Labor. The Federal Act contained sections which would permit the U. S. Department of Labor to delegate conduction of this program to the various states if sufficient capability existed within the applicant state to carry out the responsibilities as contained within the Federal Act and Regulations. Assistance was made available within the Act for States to develop occupational safety and health programs through Federal grant mechanisms.

III. FEDERAL-STATE RELATIONSHIPS IN SOUTH DAKOTA

To assist in coordination of Federal-State efforts in the implementation of the Williams-Steiger Act, U. S. Secretary of Labor James D. Hodgson requested that Governor Kneip make an official State designation of the South Dakota representative to work with the U. S. Department of Labor. By letter dated March 11, 1971, Governor Kneip advised Secretary Hodgson that "recognizing that the Federal State cooperative provisions of the Federal Occupational Safety and Health Act relate closely to the program responsibilities within the Health Department, by the State agency to work with the United States Department of Labor in regard to provisions of this Williams-Steiger Occupational Safety and Health Act."

IV. STATUS OF STATE PARTICIPATION

The State of South Dakota has initiated participation in two areas of implementation of the Williams-Steiger Act. One of these areas is involved with development of a system for obtainment and utilization of occupational injury and disease reports. The other participation area relates to possible establishment of a state program of prevention of occupational injuries and diseases.

A planning grant application for this record-keeping component was made by the State Department of Health Division of Public Health Statistics to the U. S. Department of Labor, Bureau of Labor Statistics. Funds obtained under this grant were for development of a plan to collect and utilize occupational safety and health statistics. The application was funded at a level of $14,060 ($1,976 State and $12,093 Federal) for the project period of July 1, 1971 through March 31, 1972. Report forms have been developed and are now being distributed for trial utilization. Extension of the grant period from March 31, 1972 through June 30, 1972 and possible expansion of the project as requested by the Department of Labor are currently being negotiated.

Regarding a State program for prevention of occupational injuries and diseases, Governor Kneip appointed an Advisory Committee on Occupational Safety and Health to evaluate the need for and development of such a program in South Dakota. This Committee has fourteen members representing employees and management. Resolutions passed by this Committee during a meeting on August 20, 1971 are presented as follows:

1. That the Occupational Safety and Health Statistical Planning Program being conducted by the State Department of Health "be extended to include self-employed and the farm family which may not be covered under this act."
2. That the State "request Federal funding for conduction of the planning study under Section 23A."

The Advisory Committee discussed the source of State matching funds for conduction of the planning study. Possible sources reviewed included obtainment of State contingency funds or requesting Legislative appropriation funds requested within the State Department of Health Budget.

Mr. Earl Bihlmeyer, Director of Comprehensive Health Planning acting as Chairman of the Advisory Committee, was requested by the Committee to investigate sources of State funds for the planning project. His inquiry, subsequent to the meeting revealed that State contingency funds would not be available for the project. Consequently, a request for matching funds was made within Senate Bill 125 which was introduced in the 1972 Legislative Session. This Bill did not receive favorable consideration. House Concurrent Resolution Number 513 was adopted by the Legislature requesting that the State Legislative Research Council conduct a study of the Williams-Steiger Act and its effect upon the people and industry of South Dakota.

V. FUTURE PLANS FOR STATE PARTICIPATION

It is anticipated that the statistical planning project will continue with the resultant development of a program for obtainment, management and utilization of occupational injury and disease statistics. Since the State Department of Health would be eligible to obtain Federal matching funds on a nine Federal to one State basis for conduction of the State study and planning project, arrangements have been completed whereby the Department of Health will conduct the occupational safety and health study and planning project under contract with the Legislative Research Council. The results of this project will be provided to the Legislative Research Council for appropriate action. It is anticipated that this project will identify the occupational safety and health needs within the first six months to a sufficient extent that any necessary State Legislation and budget for the operational program can be considered during the 1973 Legislative Session. This could enable the implementation of a comprehensive state occupational safety and health program beginning July 1, 1973.

LEAD BASED PAINT POISONING ACT

The American Medical Association urged that the Lead-Based Paint Poisoning Prevention Act be continued and expanded.

"A substantial percentage of lead poisoning can be traced to the ingestion of chips of lead-based paint by infants," an AMA statement said. "We believe that every reasonable means must be used to reduce this tragic affliction."

The AMA position was outlined in a letter from Dr. Ernest B. Howard, AMA executive vice president, to Sen. Edward M. Kennedy (D-Mass.) chairman of the Senate Health Subcommittee which was considering the extension legislation (S.3080).

"S.3080 also adds a new subsection which authorizes the Secretary of Health, Education and Welfare to make grants to state agencies for the purpose of establishing centralized laboratory facilities for analyzing biological and environmental lead specimens obtained from local lead-based paint poisoning programs," Dr. Howard said.

"This is a proper and important expansion of the program and will provide needed financial support and encouragement to local programs. We would urge that this provision be supported by the committee.

"Other provisions of this legislation are concerned with a revision of the definition of lead-based paints and with increasing the funds authorized to carry on the programs of the Lead-Based Paint Poisoning Prevention Act. The lead content of paint should be kept at the lowest level possible, and we believe that the proposed revision in the definition will materially strengthen the desired objectives of reducing the incidence of this disease. The increased authorizations should also be beneficial in aiding the program to reach a higher degree of effectiveness."

PSYCHOPHARMACOLOGY AND THE AGING PATIENT

May 29-31, 1972

A conference to discuss the clinical use of psychoactive agents and the recognition and management of psychiatric syndrome of the elderly. Center for the Study of Aging and Human Development, Duke University, Durham, North Carolina. For further information write to Mrs. Dorothy Heyman, Box 3003, Duke University Medical Center, Durham, North Carolina 27710.

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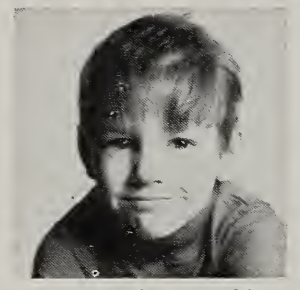

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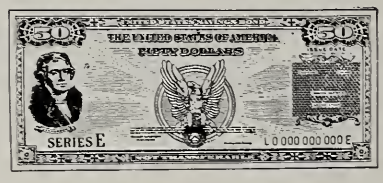

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Letters to the Editor

Editor,
Journal of South Dakota Medical Association
Sioux Falls, South Dakota

Dear Editor:

Recently while reorganizing my files I glanced through some of the material I wrote while acting as Governor Farrar's health advisor. It occurred to me that the editorial staff of the Journal might like to share these observations with the doctors of the state. I believe the statements are even more pertinent today than they were two years ago when I wrote them.

A. A survey of the rural doctors in South Dakota revealed the following:

1. The majority of doctors serving in small communities are there because they want to be, and because they take satisfaction from being able to serve in an area where they are truly needed.
2. Most of the rural doctors contacted are concerned about the future of the rural hospital.
3. The universal plea is for more help which means **more doctors.**
4. Apparently the majority of doctors answering felt the medical needs of rural South Dakota can be best served by strategically located 5-6 man groups.
5. How to get these groups started is a challenge.

B. A new health professional is appearing on the scene. They are Hospital Administrators. The majority of the administrators I have met are intelligent, well educated young men. I believe we must recognize these men as equals and cooperate with them. Working together we can move faster toward the common goal.

C. Sometime, in the not too distant future, a complex which will be called a Community Health Center will be developed. It will consist of Doctor's Offices, a Senior Citizen's Home, two way high frequency radio equipment, an ambulance and garage. Some of these facilities will be staffed by Family Physicians; others by nurses. The institutions that have M.D.'s should be equipped to do emergency surgery, manipulate fractures under anesthesia, etc. If such facilities maintain acute care beds, they should be licensed by the State Board of Health only if they are the satellite of some larger accredited hospital.

Roscoe E. Dean, M.D.

Robert E. Van Demark, M.D., Editor
South Dakota Journal of Medicine
711 North Lake Avenue
Sioux Falls, South Dakota 57104

Dear Doctor Van Demark:

There is a need for more information on the biting insects because severe reactions do occur from biting as well as stinging insects. There is also a need for case reports of reactions and results of hyposensitization.

I would like physicians to send me case reports of patients who have had allergic reactions to biting insects and the results of skin testing and hyposenitization, if these were done. I would appreciate detailed case reports if possible but a summary would be all right.

Would you print the following announcement in the South Dakota Journal of Medicine?

"I am compiling case reports of allergic reactions to biting insects, i.e., mosquitos, fleas, kissing bugs, bed bugs, gnats and flies—including horsefly, sandfly, deerfly. I am also interested in reactions to fire ants.

I would like physicians to supply me with case reports of those patients who have had reactions to such insects. Include in your reports, the history of the type of reaction and complications if any; the immediate treatment; if disensitization were attempted, what were the results? Send to:

Claude A. Frazier, M.D.
4-C Doctors Park
Asheville, N. C. 289801."

Sincerely,
Claude A. Frazier, M.D.

Dear Mr. Erickson:

I wish to thank the South Dakota State Medical Association for the scholarship made available to me for next year. I consider it a great honor and I hope some day to contribute to the medical needs of our state.

Sincerely,
Tom Van Bruggen

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SOUTH DAKOTA
MEDICAL SCHOOL NEWS

WA-SAMA CONVENTION REPORT

Five delegates representing South Dakota attended the Region V Convention of the Woman's Auxiliary to the Student American Medical Association (WA-SAMA) held in Iowa City, Iowa, March 17-19. The Convention provided an opportunity for the ten WA-SAMA Chapters in the states of Illinois, Wisconsin, Minnesota, North and South Dakota, Nebraska, and Iowa to share ideas on programs, service projects, newsletters, and many other topics. Featured speaker at the Convention was Dr. John C. MacQueen, Associate Dean of the College of Medicine at the University of Iowa, on the changing role of the individual physican. National WA-SAMA President Jean Kuenn discussed the new project in standardizing information available on physician need areas and stressed the need to become informed and involved in such areas as medical legislation and ecology.

Delegates at Convention discussed ways to implement WA-SAMA's Health Careers Project. This is designed to recruit young people into the paramedical professions to help offset the current, and growing shortage of students entering such areas as dietetics, medical technology, rehabilitation therapy, and medical social work to name a few. Within the next five years alone, the U. S. Department of Labor reports that total health manpower needs will increase by one-third; within the next ten years the rapidly expanding needs of the health occupations—and the growing need for health care—will lead to more job opportunities for trained young people in health careers than any other industry in the country. For every physician there are approximately twelve persons pursuing challenging, satisfying careers allied to medicine; i.e. the wives of medical students, interns, and residents together with their husbands are "telling it like it is" to these student youths.

Another important project initiated by WA-SAMA is in international relations. WA-SAMA has taken over the responsibility of welcoming foreign medical students who come to the United States to work in hospitals as a part of the international exchange program sponsored by the Student American Medical Association. In addition, a Foreign Doctors' Handbook is currently being printed as a national service project to help introduce their families to the American way of life. Sections have been written on those topics that are not adequately covered in current guides for foreign persons. It has been uniquely written from a woman's point of view.

Mrs. Larry Wehrkamp (Jeni) was elected Regional Coordinator of Region V at the Convention. She represented South Dakota and the Region at the National Convention in Los Angeles in April.

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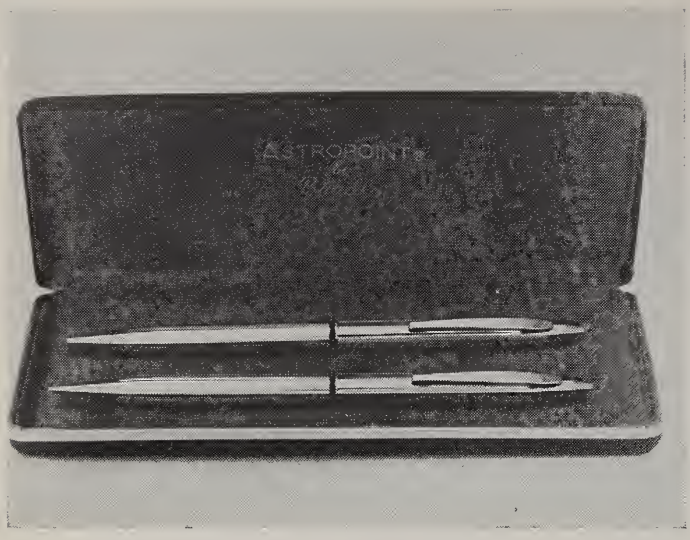

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Pre-Sate (chlorphentermine hydrochloride) is indicated in exogenous obesity, as a short term (i.e. several weeks) adjunct in a regimen of weight reduction based upon caloric restriction.

Contraindications

Glaucoma, hyperthyroidism, pheochromocytoma, hypersensitivity to sympathomimetic amines, and agitated states. Pre-Sate (chlorphentermine hydrochloride) is also contraindicated in patients with a history of drug abuse or symptomatic cardiovascular disease of the following types: advanced arteriosclerosis, severe coronary artery disease, moderate to severe hypertension, or cardiac conduction abnormalities with danger of arrhythmias. The drug is also contraindicated during or within 14 days following administration of monamine oxidase inhibitors, since hypertensive crises may result.

Warnings

When weight loss is unsatisfactory the recommended dosage should not be increased in an attempt to obtain increased anorexigenic effect; discontinue the drug. Tolerance to the anorectic effect may develop. Drowsiness or stimulation may occur and may impair ability to engage in potentially hazardous activities such as operating machinery, driving a motor vehicle, or performing tasks requiring precision work or critical judgment. Therefore, such patients should be cautioned accordingly. Caution must be exercised if Pre-Sate (chlorphentermine hydrochloride) is used concomitantly with other central nervous system stimulants. There have been reports of pulmonary hypertension in patients who received related drugs.

Drug Dependence Drugs of this type have a potential for abuse. Patients have been known to increase the intake of drugs of this type to many times the dosages recommended. In long-term controlled studies with the high dosages of Pre-Sate, abrupt cessation did not result in symptoms of withdrawal.

Usage In Pregnancy The safety of Pre-Sate (chlorphentermine hydrochloride) in human pregnancy has not yet been clearly established. The use of anorectic agents by women who are or who may become pregnant, and especially those in the first trimester of pregnancy, requires that the potential benefit be weighed against the possible hazard to mother and child. Use of the drug during lactation is not recommended. Mammalian reproductive and teratogenic studies with high multiples of the human dose have been negative.

Usage In Children Not recommended for use in children under 12 years of age.

Precautions

In patients with diabetes mellitus there may be alteration of insulin requirements due to dietary restrictions and weight loss. Pre-Sate (chlorphentermine hydrochloride) should be used with caution when obesity complicates the management of patients with mild to moderate cardiovascular disease or diabetes mellitus, and only when dietary restriction alone has been unsuccessful in achieving desired weight reduction. In prescribing this drug for obese patients in whom it is undesirable to introduce CNS stimulation or pressor effect, the physician should be alert to the individual who may be overly sensitive to this drug. Psychologic disturbances have been reported in patients who concomitantly receive an anorectic agent and a restrictive dietary regimen.

Adverse Reactions

Central Nervous System: When CNS side effects occur, they are most often manifested as drowsiness or sedation or overstimulation and restlessness. Insomnia, dizziness, headache, euphoria, dysphoria, and tremor may also occur. Psychotic episodes, although rare, have been noted even at recommended doses. **Cardiovascular:** tachycardia, palpitation, elevation of blood pressure. **Gastrointestinal:** nausea and vomiting, diarrhea, unpleasant taste, constipation. **Endocrine:** changes in libido, impotence. **Autonomic:** dryness of mouth, sweating, mydriasis. **Allergic:** urticaria. **Genitourinary:** diuresis and, rarely, difficulty in initiating micturition. **Others:** Paresthesias, sural spasms.

Dosage and Administration

The recommended adult daily dose of Pre-Sate (chlorphentermine hydrochloride) is one tablet (equivalent to 65 mg chlorphentermine base) taken after the first meal of the day. Use in children under 12 not recommended.

Overdosage

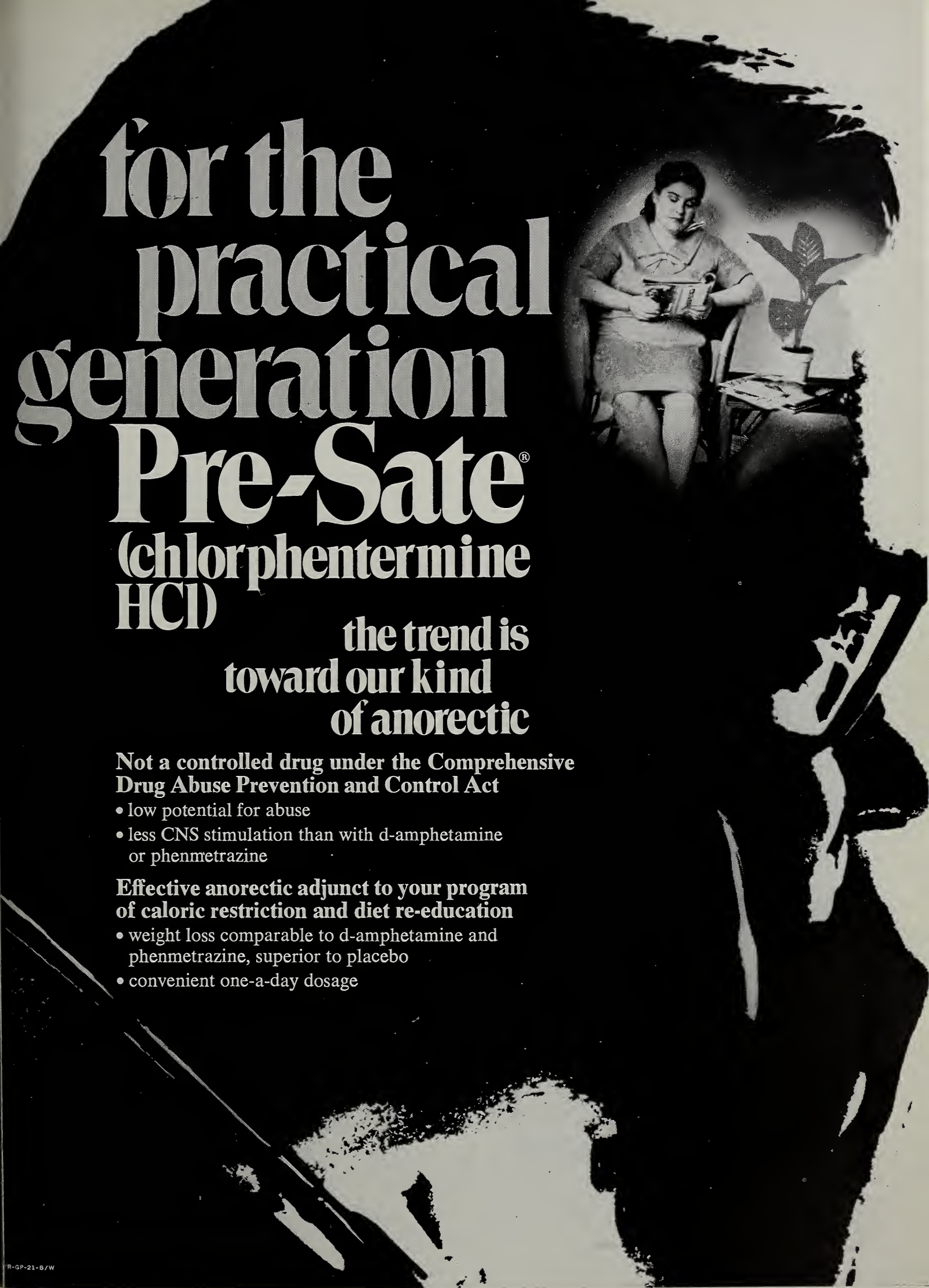
Manifestations: Restlessness, confusion, assaultiveness, hallucinations, panic states, and hyperpyrexia may be manifestations of acute intoxication with anorectic agents. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension, or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Fatal poisoning usually terminates in convulsions and coma.

Management: Management of acute intoxication with sympathomimetic amines is largely symptomatic and supportive and often includes sedation with a barbiturate. If hypertension is marked, the use of a nitrate or rapidly acting alpha-receptor blocking agent should be considered. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendations in this regard.

How Supplied

Each Pre-Sate (chlorphentermine hydrochloride) tablet contains the equivalent of 65 mg chlorphentermine base; bottles of 100 and 1000 tablets.

Full information is available on request.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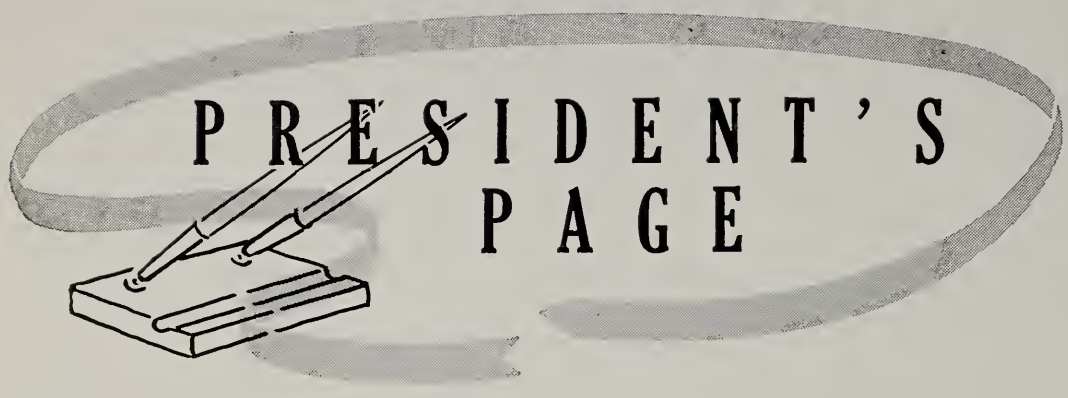

Twelve months ago you honored me with the presidency of our state association. I think it is safe now to confess that I accepted this signal recognition and undertook the task with considerable misgiving and doubt whether I could fill the footsteps of so many illustrious and able predecessors.

Now, after a year as your president, I can only say that no one could have had a more rewarding and satisfying term than I. It has been a tremendous experience, largely in the sense of having met and come to know so many fine people.

I have always been proud of our profession as it exists and functions in South Dakota. I have always felt that, considering its economic and geographic problems and limitations, South Dakota is fortunate indeed to have an extraordinary quality of medical practice. Now, after viewing it from the perspective provided by the presidency of the S. D. State Medical Association, I am more certain than ever of that fact. South Dakota medicine and medical men measure up to those anywhere, and I say that with great pride and conviction.

This has been a remarkably busy year, both for our association and for its president. I have been able to visit each district and to meet with many of you to discuss our mutual problems and objectives. As to the record for the year, I think 1971-72 may go into the books when medical education was levered out of the educational middle ages and turned toward a new and modern concept which hopefully will not be too long in flowering into a top-grade, degree-granting school in our midst.

I think an even cursory study of the advancing median age of South Dakota physicians will underline the need for new blood in our ranks. Our state needs all the young doctors it can get and I firmly believe that the process of educating them fully must be close at hand if we are to get them.

I believe, too, as I have said repeatedly, that medicine as a profession must get actively involved in public affairs, in the arena where the laws and regulations are made. We must be willing and able to speak for ourselves and to influence the decision-making processes lest we lose control of our own profession and our own livelihoods. I think the latter point is a good deal nearer than many of us will admit, even to ourselves.

But even as we do become active and involved, we are able to move with American medicine ever nearer new horizons of victory over human disease and affliction. We are fortunate indeed to be living in a great age of medical progress and triumph over some of mankind's ancient enemies.

This has been a tremendous year for me and I thank you for it.

G. Robert Bartron, M.D.

MATERNAL AND CHILD HEALTH PROGRAM

Postgraduate Courses

The Maternal and Child Health Program of the University of California School of Public Health at Berkeley announces postgraduate courses of instruction for pediatricians, obstetricians, and other physicians interested in receiving training in this field. These programs all lead to the degree of Master of Public Health. **Tax-exempt** Fellowships are available, consisting of support for the trainee and his dependents, tuition and fees.

Program areas at the present time include nine-month programs in Maternal and Child Health, Health of School-Age Children and Youth, and Family Planning. Twenty-one month programs in Care of Handicapped Children, Comprehensive Health Care and Perinatology are also available.

Applications are now being accepted for the group entering September, **1973.** For information, write to Helen M. Wallace, M.D., School of Public Health, University of California, Berkeley, California 94720.

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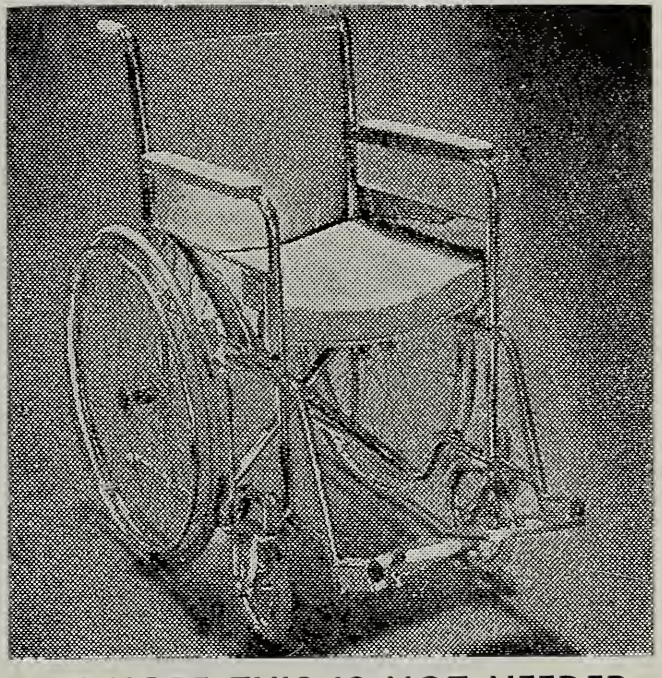
May 26-27, 1972

This two-day comprehensive symposium will be held at the Astroworld Hotel, Houston, Texas. Co-sponsored by the American Medical Association and the Harris County Medical Society, the Symposium will focus on how a community can develop a comprehensive emergency medical program, review the roles of local, state and national organizations, and assess the resources available to accomplish the goals. There will be a $50.00 registration fee for the Symposium which will include two lunches, dinner and a reception.

For additional information, contact the Harris County Medical Society, 400 Jesse H. Jones Library Building, Texas Medical Center, Houston, Texas 77025.



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NEW REQUIREMENTS FOR SCHEDULE I AND II CONTROLLED SUBSTANCES

The following letter was forwarded to us by the Legislative Department of the American Medical Association. We urge you to read it carefully.

Dr. Albert Gunn
Assistant Director
Department of Governmental Relations
American Medical Association
1776 K Street, N. W.
Washington, D.C. 20006

Dear Dr. Gunn:

I would like to request your assistance at this time in publicizing the fact that effective May 1, 1972, only Bureau of Narcotics and Dangerous Drugs Official Order Forms will be valid for transactions involving Schedule I and II controlled substances. Any practitioner may obtain the new forms by forwarding the old type IRS order form requisition (IRS Form 679) to the BNDD Registration Branch, P.O. Box 28083, Central Station, Washington, D.C. 20005.

The registrant's complete, nine-character BNDD registration number must be shown on the form in order that it may be processed. IRS Form 679 will not be honored as a valid requisition for official order forms after April 30, 1972. Therefore, this type requisition should be submitted as soon as possible. Any registrant who does not have an IRS requisition and who desires the new order forms, is required to complete form BND 222D and forward it to the Registration Branch. The BND 222D forms may be obtained from the Registration Branch or any BNDD Regional Office.

It would be a tremendous help to this Bureau's order form operation if the above information could be channeled to the various state and local Medical Society publications.

Thank you for your cooperation in this important matter.

Sincerely,

Alfred A. Russell, Chief
Registration & Audit Division
United States Department of Justice
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News Notes • Changes • Births • News

New officers for the Black Hills District Medical Society are **Russell Harris, M.D.,** President, Rapid City; **Layne Carson, M.D.,** Vice President, Lead; and **J. A. Kovarik, M.D.,** Secretary - Treasurer, Rapid City.

* * * *

A. A. Lampert, Jr., M.D., Madison, has been named superintendent of the Lake County Board of Health. **Howard Wold, M.D.,** is vice president of the Board.

* * * *

E. J. Batt, M.D., Sisseton, announced the arrival of Mr. E. C. Lie who is a Medex (doctor's helper) and who will work with him in the local clinic and hospital.

* * * *

Richard F. Jantzen, M.D., has been appointed to the medical staff of the Hot Springs V. A. Center. Dr. Jantzen is a graduate of the California College of Medicine, Los Angeles, and previously practiced in Los Angeles and White City.

* * * *

Howard Saylor, M.D., Huron, has been re-elected chairman of the South Dakota Welfare Commission. This is his fourth consecutive term as chairman.

The Yankton District Medical Society has elected the following officers for 1972: President — **Richard Porter, M.D.,** Yankton; Vice President — **K. A. Muckala, M.D.,** Vermillion; Secretary — **C. R. Herbrandson, M.D.,** Vermillion; and Treasurer — **James Jackson, M.D.,** Yankton.

* * * *

A "Radiological Seminar for X-Ray Personnel" was held at St. John's McNamara School of Nursing. Speakers included **James Kunz, M.D., A. L. DeWald, M.D.** and **Dale Bergeron, M.D.,** all of Rapid City.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

Bond L. Bible, M.D., Chicago, Secretary of the Rural Health Council of the American Medical Association, spoke on comprehensive health planning, its importance and how to best accomplish it at the local and state level at a public meeting held at Augustana College in Sioux Falls.

* * * *

Dr. Joseph D. Welty, Professor of Physiology at the University of South Dakota, has been awarded a $25,770 continuation grant by the National Heart and Lung Institute for his research on the contractile properties of the failing heart.

Dr. Jack M. McBroom, Assitant Professor of Physiology and Pharmacology at the University of South Dakota School of Medicine, will travel to Kiev, USSR where he will attend and present research at the Ninth International Congress of Gerontology from July 2-7.

* * * *

A. W. Spiry, M.D., Mobridge, announced that he will be a candidate for the Republican nomination for re-election to a third term to the South Dakota Senate representing District 21.

The Madison - Brookings Medical Society heard **John Lowe, M.D.**, Director of the South Dakota Regional Medical Program, speak on the prevention and treatment of heart disease, cancer and stroke through regional programs around medical centers and medical schools by bringing professional help to the community.

* * * *

The University of South Dakota School of Medicine has announced that **James P. Steele, M.D.**, Professor of Radiology, has been awarded an $8,000 grant by the National Fund for Medical Education. His project is entitled "New and Improved Teaching Methods for Medical Students in Radiology."

* * * *

The South Dakota Trauma Committee, the American College of Surgeons and St. Luke's Hospital in Aberdeen sponsored an athletic injuries clinic for area coaches and trainers. General chairman for the clinic was **A. J. Janusz, M.D.**, Aberdeen, and speakers included **Howard Saylor, M.D.**, Huron, "Injuries to Trunk and Head," and **J. T. Billion, M.D.**, Sioux Falls, "Treatment of Ligament Tears and Contusions."

BLUE SHIELD CITES HEALTH NEEDS TO GOP

A Blue Shield official recently urged the Republican Task Force on National Health to develop orderly and realistic priorities as the first step in meeting America's health problems. Ned F. Parish, president, National Association of Blue Shield Plans, told the Task Force that because expenditures for health must compete with other national needs, the health care system "cannot simultaneously increase supply, improve access, raise standards of quality, render more services to more people and lower overall costs."

FALLS MAJOR CAUSE OF DEATH

Falls are the largest single cause of accidental deaths next to motor vehicle accidents in the country, according to the National Safety Council. In 1970, more than 18,000 persons were killed as a result of falls, while motor vehicle accidents took 54,862 lives. At work, falls accounted for slightly over 20 percent of all disabling injuries and fatalities.

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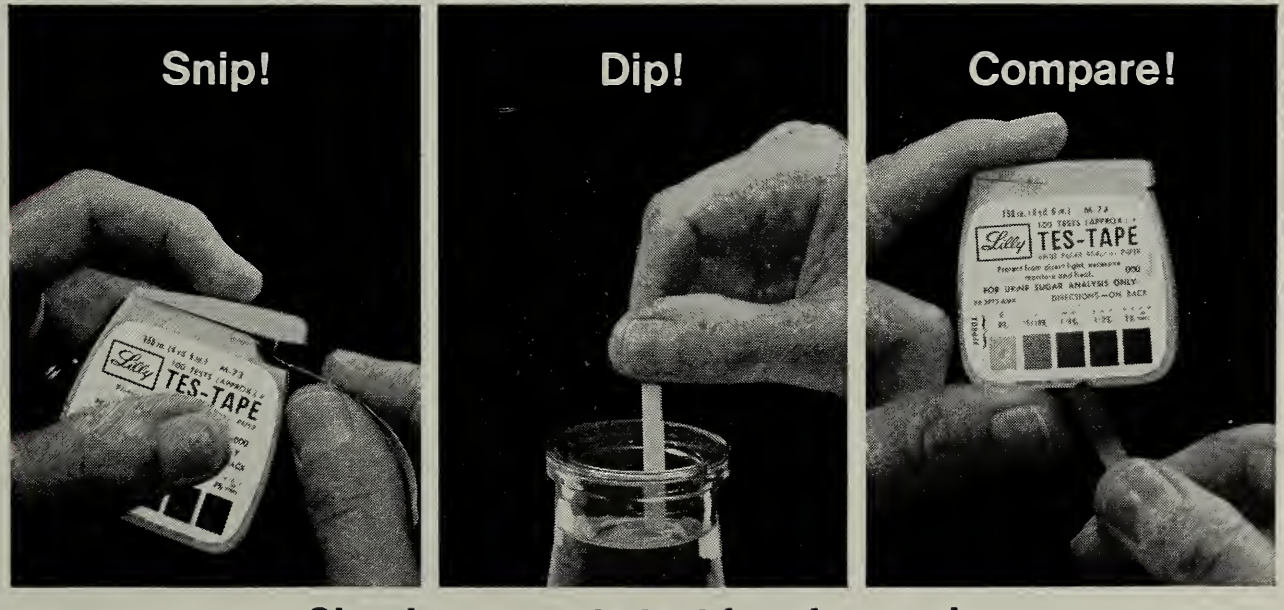

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CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

JOHN F. BARLOW, M.D., FCAP**
Pathologist - Editor

CHARLES PELTON, M.D.*
Internist - Discusser

THIRTEEN MONTH OLD CHILD WITH SWELLING OF CHEEK FOR SEVERAL MONTHS DURATION

CASE NO. 69-1004

This thirteen-month old Caucasian male was admitted to Sioux Valley Hospital with a chief complaint of swelling of the left cheek for several months.

The patient had developed normally. There was no history of previous illness, feeding problems or failure to gain weight. There was no history of fever or convulsions. A few months prior to admission the patient developed gradual progressive swelling of the left cheek.

Physical examination was remarkable only because of swelling of the left cheek. There were no rashes or lymphadenopathy. The chest was clear to auscultation and percussion. There were no organs or masses on abdominal examination. Neurologic examination was unremarkable. The extremities were freely movable. The heart had a regular rhythm with no murmurs.

Clinical Pathology Data: Urinalysis - yellow, clear, specific gravity 1.010; pH 7.5; negative for protein, glucose, ketone bodies and hemoglobin; microscopic - 0-1 leukocytes/hpf, hemoglobin 10.4 gms/100 ml., total leukocyte count 10,600 per cubic mm, with 52% neutrophils, 43% lymphocytes and 5% monocytes. The erythrocyte sedimentation rate was 29 mm/hr. There was moderate anisocytosis and mild hypochromia. Platelets were adequate on smear. Platelet count was 547,000 per cubic mm. The partial thromboplastin time was 36 seconds with 30 second control. Serum sodium was 135 meq/L, chloride 107 meq/L, carbon dioxide content 21 meq/L and pH 7.49 Skull x-rays showed a 1.5 cm radiolucent defect in the right frontal bone and a second in the vault. The facial area was not well demonstrated in these views, but the left zygoma seemed destroyed along the lateral orbital wall. Chest films showed an expanding lesion of the left third rib. The lung fields were clear. The heart was normal. Films of the spine and pelvis showed an apparent zone of destruction in the left aspect of the body of D9. Both lower extremities were unremarkable. A biopsy was performed.

DR. CHARLES L. PELTON: In summary, we have a child who came in for swelling of the left cheek. The remainder of the history and physical examination was unremarkable. In the laboratory data, he had a hemoglobin of 10.4 gm/100 ml., (but this is not too abnormal for a patient this age) and some mild anisocytosis and hypochromia on the smear. The platelet count might be slightly high and there is a suggestion of iron deficiency. There are major findings in the x-rays with defects in the skull and rib as well as in the facial bones. This child presents as malignancy of childhood with defects in the bones. I would like to review on a statistical basis what malignancies might be present in children under 5 years old. At least 35% of the malignancies in this age group are leukemia. Leukemia does not usually present this way with nor-

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mal platelet count and suggestion of metastases in the bones on x-rays. The blood smear may not show immature cells, but I think the diagnosis of leukemia is unlikely in this case.

Another common malignancy of childhood usually arises in the adrenal gland. This comprises 14% of malignancies in childhood and is called a neuroblastoma which rises in the adrenal medulla from the cells of sympathetic origin. Neuroblastomas can occur elsewhere along the sympathetic chain such as in the neck, or anywhere along the vertebral column, but most of the tumors arise from the adrenals. 70% of these tumors occur within the first five years of life. Symptoms of this tumor are an abdominal mass or mass in the chest (if it were going to occur extra-abdominally), or chest symptoms such as cough and shortness of breath if the tumor were going to occur in the chest. There is often an elevated V.M.A. (3-methoxy 4-hydroxy vanil mandelic acid) as well as calcification in the mass in the abdomen or chest and multiple bone metastases on x-ray.

Another common malignancy of childhood is the Wilm's tumor of the kidney or nephroblastoma. This tumor occurs from four months to six years of age with the highest incidence at about three and a half years of age. There are also other stigmata such as multiple hemangiomas, hemihypertrophy, or multiple pigmented nevi, and genitourinary abnormalities. None of these stigmata are present. There is usually a mass in the flank and none is recorded in this case. Increased blood pressure may be present and there is no blood pressure recorded on this child. I will assume that it was normal. The child did not have hematuria which is sometimes present. X-ray findings should have included a mass on intravenous pyelogram, possible pulmonary metastases, and a mass displacing the bowel in the abdomen. None of these were present.

11% of malignancies of childhood are brain tumors. There were no central nervous system symptoms, and there was no lumbar puncture done on this child. This possibility is ruled out.

6% of children have gastrointestinal malignancies. This child has no evidence of gastrointestinal problems.

The lymphomas and sarcomas constitute 10% of malignancies of children under 5 years of age, but there should have been a noticeable mass externally or on x-ray. Tumors of bone such as osteosarcoma and Ewing's tumor of bone occur in a little older age group, and we have no good radiologic documentation of this type of tumor in this case.

The last group of tumors is the malignancies of the eye. There is often destruction of the orbit, and, in this case, there is destruction of the zygoma. The following tumors of the eye occur in order of frequency: angiomas, lymphomas, dermoid cysts, carcinoma of the paranasal sinuses or lacrimal gland, retinoblastomas, meningiomas (with meningiomas there are often hyperostotic changes), melanomas, neurofibromas (this often presents with enlargement of the optic foramen), and pseudotumors of the orbit (this is really a nonspecific inflammatory type of change). The last is a very common entity. It can often cause proptosis of the eye.

Now that I have finished with this differential diagnosis, I would like to ask my fellow interns what they think. Actually, I have another diagnosis in mind that I have not mentioned.

*DR. RUSS LAMBERT: Did you mention Hand-Schuller-Christian's disease?

DR. PELTON: No, that's what I think it may be, but I also strongly consider neuroblastoma.

DR. LAMBERT: Can the disease occur this early in childhood?

**DR. DON BREIT: It can occur in infancy.

DR. LAMBERT: With multiple lytic lesions in a child, especially in the skull bones, I certainly would consider this diagnosis.

†DR. BILL NELSON: I agree with Russ. I wonder about multiple myeloma in this age group.

DR. BARLOW: That would be an extraordinarily rare disease in this age group.

***DR. MICHEL BROWN: I recall seeing a case of multiple bone cysts in childhood that went away later on. However, I suppose this is really a reticuloendotheliosis such as Schuller-Christian.

DR. PELTON: Thank you, my friends. (Laughter) I would agree that this certainly could be a reticuloendotheliosis. There are three varieties of this: 1) Letterer-Siwe's, 2) Hand-

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Schuller-Christian's disease, and 3) eosinophilic granuloma.

Letterer-Siwe's disease is a disease of infancy and childhood with a rapidly fatal course with skin involvement and visceromegaly, and often no x-ray findings.

Hand-Schuller-Christian's disease is a more benign disease with destructive lesions in the skull bones and other bones such as the pelvis, scapula, and flat bones. This occurs in late childhood and adolescence, and sometimes early adult life. There is often also an associated diabetes insipidus and exopthalmos. This disease may extend over a period of years. Characteristically, you are supposed to see a triad of exopthalmos, diabetes insipidus, and defects in the skull bones.

The last disease is eosinophilic granuloma, which is a disease of late childhood and young adult life. It often involves a single bone, but may involve the lungs with a rather destructive process. The process may occur in many bones or even as several lesions disseminated through the skeleton, including the mandible and maxilla. These three diseases in a group are often referred to as reticuloendothelioses or disseminated histiocytoses. A characteristic finding on x-ray is a soft tissue mass overlying the defect in the bone. I believe this case to be really a sort of combination of all three diseases although there is no visceral involvement.

DR. CHARLES PELTON'S DIAGNOSIS

1. DISSEMINATED HISTIOCYTOSES OF BONE (EOSINOPHILIC GRANULOMA).
2. POSSIBLE METASTATIC NEUROBLASTOMA.

DR. BARLOW: Dr. Don Breit has been following this patient for a couple of years now, and I would like him to show the x-rays and comment on the case.

DR. DONALD BREIT: I might add one little part to the history. There was a prior history of trauma to the cheek, but I do not think this is really significant. The patient was placed on antibiotics for a while with some improvement in the swelling of the cheek. I want to show the first film that was taken of this patient. This shows the destruction of the zygoma and maxillary process (figure 1). You can also see a soft tissue mass and a radiolucent defect in the skull away from the lesion

Figure 1

Note soft tissue mass and destruction of zygome (arrow) over left side of face. This corresponds to gross figure 2. Also note obvious bony skull defect above right orbit.

about the opposite orbit. From these x-rays, one has to consider a differential diagnosis of three possibilities: an infectious process, a neoplastic process, or a metabolic process. The most common infection in bone in childhood is an acute bacterial osteomyelitis. The destruction of the orbit could fit with osteomyelitis, but the separate defect in the skull would be unusual in osteomyelitis. There should have also been a great deal of skin and soft tissue reaction clinically with osteomyelitis. The child did not have this. There was no pain or tenderness as one might expect with osteomyelitis. In fact, the patient had very few complaints except gradual progressive enlargement of the mass which was slightly tender.

Certainly I agree with Dr. Pelton that neoplasm should be considered. A neuroblastoma is a common tumor in childhood and although this skull x-ray would not be where the primary tumor would be, the findings of destruction in the orbit as well as the separate skull defect are consistent with neuroblastoma. With neuroblastoma I would also expect to see some diastasis of the sutures and I don't see that.

*DR. DORENCE ENSBERG: Would this be because of cerebral metastases and increased intracranial pressure?

DR. BREIT: Yes. Another malignancy of childhood is the Wilm's tumor and Dr. Pelton has discussed why this case probably does not represent that lesion. Other malignancies such as sarcoma should be considered. Certainly a rhabdomyosarcoma should be considered. This tumor often starts in the muscles of the eye and can destroy the orbit as in this film. This tumor could also metastasize to the skull causing the defect pointed out above. I do not think that rhabdomyosarcoma is a likely lesion in this case. I did have the advantage of seeing this child clinically too, and he was not sick enough for that lesion.

The last possibility is one of the histiocytoses or reticuloendothelioses. As Dr. Pelton pointed out, there are three overlapping clinical syndromes: Letterer-Siwe's disease, Hand-Schuller-Christian's disease and eosinophilic granuloma. These are all often lumped into the category of histiocytosis x at this point. However, for the purposes of treatment and prognosis, they have been broken back down into the original three categories as Dr. Pelton discussed and called groups, I, II, and III or A, B, and C. A lipoidosis such as Gaucher's disease is unlikely in this case (although you can get skull involvement in that entity). Nieman-Pick's disease is extraordinarily unlikely as the child would have died by this time.

There are some other films showing lesions in the ribs. Here is another skull film showing defects in the bone (figure 2). Before going any further, I'd like Dr. Barlow to show some of the pictures of the patient in this case. This is a picture showing the swelling of the cheek. You will note from the child's expression that this is not bothering him very much. (Figures 3 and 4). Here is another picture

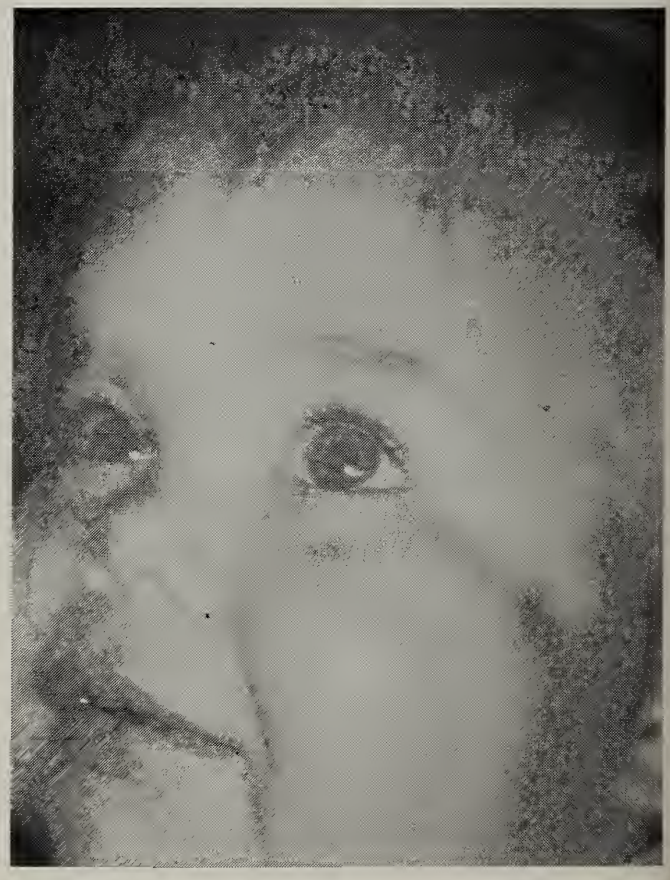
Figure 2

Two defects in skull (noted by arrows). These are characteristic of histiocytosis X.

Figure 3

Note swelling of left cheek as compared to right. This was the child's presenting complaint.

Figure 4



Another view of swelling of cheek on left.

*Surgeon, Sioux Valley Hospital; Clinical Faculty, School of Medicine, University of South Dakota.

Figure 5

Double swelling of soft tissue over skull defects later in course.

showing soft tissue swelling over a defect in the skull (figure 5). This is a picture showing two soft tissue swellings. Now I would like to go back to the x-rays and point out again these lesions in the rib and one in the ninth thoracic vertebra and another in the radius (figures 6 & 7). The remaining long bones are alright and the chest film is clear, showing no visceral involvement as may occur in histiocytosis x. These bony defects occurred at various times in the course of his disease.

**DR. WARREN JONES: Is that a normal thymus gland?

DR. DON BREIT: I think that it is within normal limits for a child this age. With the clinical course and these x-rays as pictured, the diagnosis can be little else than histiocytosis x. Of course, by this time, we also had a histological diagnosis. This patient was followed for two years, and the interesting thing about this case is the number of skeletal areas that have been involved. There were thirty-six separate lesions in this child. This has made treatment a problem. The child was first given Nitrogen Mustard with no response to the lesions. His white count dropped, and he developed an infectious process which responded to antibiotics. Some of the lesions that the patient developed later on were painful. The initial lesions, as I described, were not painful.

DR. BARLOW: Is Nitrogen Mustard the usual initial treatment for histiocytosis x?

DR. BREIT: No, it isn't. Systemic chemotherapeutic agents may become necessary as in

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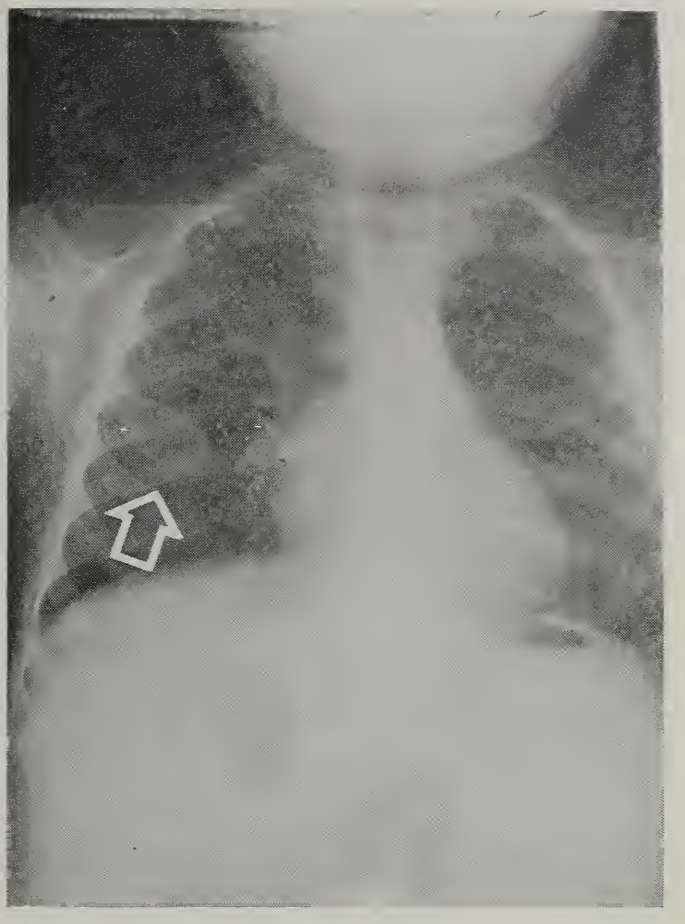
Figure 6



Note expanding lesion of rib (arrow).

Figure 7

Note expanding defect of radius.

this case. Vinblastine is often used, or corticosteroids. This case is unusual in that he had multiple lesions. The usual treatment for lesions of this group is radiotherapy. I have treated quite a number in previous years with excellent response to small doses of radiation. In this particular case, the patient had so many multiple lesions that there is a limit to how much radiation he could have endured. He had to be started on steroids to prevent new lesions from forming. Actually, Dr. Huet of Huron has treated this patient, but he was unable to attend this conference today because of last-minute commitments.

Follow-up films show some healing of the original skull defect, but there are new ones. The troublesome lesions were treated with radiotherapy with good response. The pelvic bones were extensively involved and had to be treated with radiotherapy. The steroids seemed to prevent the development of new lesions because when the steroids were stopped, the patient developed multiple new lesions.

DR. WARREN JONES: How much radiotherapy do you have to give these lesions to get a response?

DR. BREIT: You can give 250 to 600 r in air which is about 200 to 400 rads. These are very small doses.

DR. JONES: Is the type of expanding lesion that you show on the chest film characteristic of this disease?

DR. BREIT: It is seen in the ribs, but often in the long bones punched out defects are more characteristic. You will note from the x-rays that there was one lesion in the rib which responded to x-ray and then he developed other rib lesions. Usually the defects are well delineated.

DR. BROWN: What is the prognosis for this child? Is this a disseminated disease?

DR. BREIT: As long as the lesions remain confined to the skeleton (and there is a good chance that they will), the child will have an excellent prognosis.

DR. PELTON: What are the chances of visceral involvement?

DR. BREIT: I think that they are very small. Of course, you can never predict for certain.

DR. JONES: Then each time he has a new lesion you treat it with radiotherapy and it improves. How long can this go on?

DR. BREIT: Yes, each one seems to improve with radiotherapy. If the child survives three years, his chances for prolonged survival are excellent. He is over two years now.

DR. JONES: For a normal life-time?

DR. BREIT: Yes.

DR. JONES: What is all this therapy including the steroids doing to his growth and development?

DR. BREIT: Well, the literature clearly states that growth retardation may occur secondary to histiocytosis x. However, I wonder how much of it is due to the steroid therapy itself. I have treated by radiotherapy quite a number of patients throughout the years with one, two or three lesions of bone with excellent results, and no growth retardation or any residual problems have occurred. I do not think there is any doubt that radiotherapy is the treatment of choice for a small number of lesions. I will repeat, however, that this child absolutely required steroids.

DR. JONES: How much steroid therapy is the patient on?

DR. BREIT: I believe he is getting 0.2 to 0.4 mgs per kilogram per day in three week courses with two injections of ACTH each week. He has had several courses of therapy. Dr. Huet has been treating with steroids because the patient develops multiple new lesions if he is not on this drug. He has done this with some consultation from some of the larger medical centers.

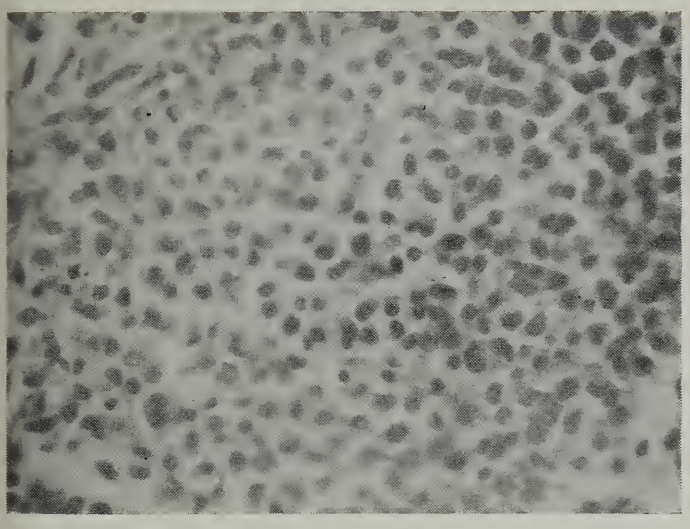
DR. BARLOW: First of all, I would like to show this slide demonstrating the characteristic proliferation of histiocytes with scattered eosinophils as seen in this lesion. As you can see from this picture, the histiocytes do not appear malignant (figure 8). This biopsy was taken from one of the skull lesions.

ANATOMIC DIAGNOSIS

1. HISTIOCYTOSIS X.

The entity we are discussing today has been a confusing one to many physicians for a long

Figure 8



Typical histiocytic proliferation of histiocytosis X.

time because: 1) the etiology is unknown; 2) the course of disease is unpredictable (although I will try to point out some helpful points); 3) there have been a great many different syndromes reported to describe the varied clinical and histopathologic manifestations of the disease. These have been mentioned in some detail by both Dr. Pelton and Dr. Breit. 4) A great many organs may be involved in the disease process and one organ or tissue may be involved at one time and another organ or tissue at another in the course of the disease. 5) Treatment has been difficult to evaluate bcause of unknown and unpredictable remissions and exacerbations.

Most authors agree that the disease is not a disease of lipid storage. There are foam cells (lipid-laden macrophages) in the disease and these are filled with cholesterol but the cholesterol apparently arises from destruction of tissue. The blood lipid values such as the cholesterol and triglyceride are completely normal. The disease is histiocytosis x and is not a lipoidosis. The disease is basically a proliferation of histiocytes which are bland in nature as shown previously. Eosinophils, macrophages with lipid, fibrosis, and multinucleated giant cells may occur at different stages or in different areas at the same time in the patient. This gives rise to a varied histologic picture. This varied histologic picture has been responsible for the many names pathologists have given the entity such as eosinophilic granuloma, xanthofibroma, acute or chronic disseminated histiocytosis, etc. Even more confusing has been the different clinical presentations which have given rise to different clinical syndromes. The unified concept of this disease in which the whole gamut of changes is lumped into the entity of histiocytosis x largely extends from the work of Dr. Lichtenstein.

One of the common names for this entity has been eosinophilic granuloma. This usually refers to a localized lesion of bone, often in the skull or in a long bone, which is nonprogressive and seen in an adult or older child. This term should not be confused with eosinophilic granuloma of the skin (granuloma faciale) or eosinophilic granuloma of the intestinal tract, which is a diffuse infiltration of eosinophils either in the stomach or elsewhere in the gastrointestinal tract or eosinophilic granuloma of the prostate. These are entirely separate entities. The obvious confusion is why I do not like to use the term eosinophlic granuloma for this lesion of bone and prefer to use histiocytosis x. Histiocytosis x involving the lung can present as multiple reticulonodular densities which may progress to honeycomb lung. This has also been referred to as eosinophilic granuloma of the lung.

Hand-Schuller-Christian's disease, or chronic disseminated histiocytosis, has been described in many text books as a triad with skull defects, exophthalmos and diabetes insipidus. Actually, this triad is seen in less than 10% of cases of histiocytosis x. Usually other bones are involved in the process and this particular eponym is not useful.

Letterer-Siwe's disease or acute disseminated histiocytosis is usually a disease of children and usually occurs between one and four years of age. It is characterized by fever, otitis media due to defects in the temporal bone, a seborrheic-like skin rash which is infiltration of the skin by the histiocytes, pancytopenia, hepatosplenomegaly and often lymphadenopathy. The prognosis is often poor, but not necessarily so. This is simply one end of the spectrum of histiocytosis x.

Therefore, we can see that the clinical picture may vary from case to case, and even more confusing is that all of the syndromes of visceral and bone involvement may overlap. The tempo, severity and localization of the disease may vary within wide limits. The pathological picture is also variable. I think it must be pointed out strongly that you cannot distinguish any of the clinical entities or

make a prognosis based on the pathologic picture. The diagnosis of the disease, of course, must be confirmed by histology but the prognostic value of the histology is extremely limited. It should also be pointed out that eosinophilia of the peripheral blood is not common in histiocytosis x although, as you know, the name eosinophilic granuloma has been given to the disease and eosinophils are prominent in many of the lesions.

The problem in the case today, as in most cases, concerns the prognosis and treatment. Although it his hard to predict the outcome of this disease, a few factors are apparent. Age is important. The younger the patient, the more likely he is to have disseminated disease. However, that is certainly not always the case. Oberman, in a review of histiocytosis x, in 1961 divided the disease into three groups. There was a total of forty patients in all. Group I comprised 17 patients with the disease localized to one or more lesions of bone at the onset. Only one of these patients died and the death was secondary to complications secondary to a vertebral fracture and spinal cord compression. In group II there were 17 patients. These patients had both visceral and long bone lesions as initial symptoms. Nine of these patients died of progressive disease. In group II, there were 6 patients, all of whom had only visceral lesions with no bony lesions. Four out of the six of these died of their disease. It would appear, therefore, that when the disease presents as solely skeletal manifestations, as in this case, the prognosis is good.

*DR. R. G. OLSON: What limits the amount of radiation that you can give a patient?

DR. BREIT: I think in a child like this, one does not want to give more than 400 rads to an area of a growing epiphysis. Also, one has to limit the amount of radiation going to the gonads when radiating the pelvis, as was necessary in this child. As long as the radiation is kept reasonably local, only minimal bone marrow depression should occur, especially with these low doses.

**DR. R. D. SCHULTZ: Can these lesions occur in the same area after treatment with x-rays?

DR. BREIT: Yes, they can and did in this case, but they responded to further x-ray.

---

*General Practioner, Sioux Valley Hospital.

**Pathologist, Sioux Valley Hospital.

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Scientific PAPER

TOTAL HIP REPLACEMENT

By
H. Phil Gross, M.D.
Sioux Falls, S. D.

Total replacement of the hip joint has recently become an acceptable method of treatment for arthritis of the hip. This procedure has been in use for some time. Gluck mentioned the concept in his lectures to the German Medical Society as early as 1890.[1] Phillip Wiles[2] reported his early experience in 1958, six cases dating back to 1938.

However, the procedure was never dependable until J. Charnley[3] began to use methylmethacrylate cement to fix the components into bone. This gave the necessary fixation to prevent painful loosening of the two parts, which was a prominent fault of the previous operations.

CEMENT

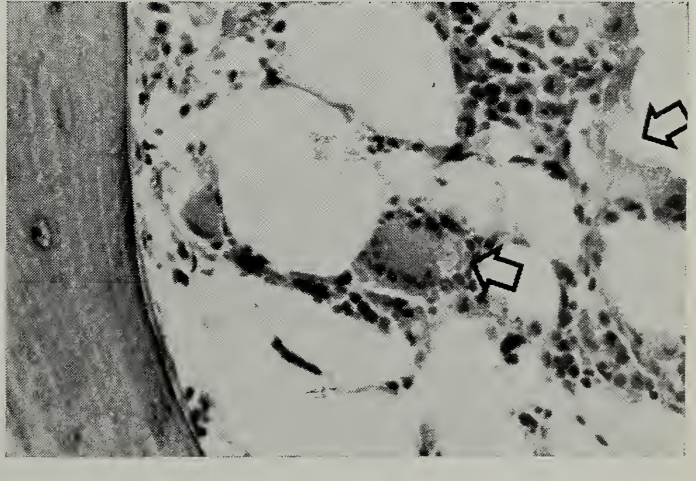
Polymethylmethacrylate cement is composed of a powder and a liquid.[4] These two components are mixed manually like a dough, and chemically activated to polymerization by a tertiary amine (dimethyl-p-toluidine.) This is an exothermic reaction which takes approximately ten minutes from initiation to final setting into a hard bone-like matrix.

The cement is commonly referred to as a "bone-glue", which is a misnomer. Methylmethacrylate has no adhesive qualities and simply acts as a filler. It maintains fixation of the components of the hip joint by its intimate contact with both the prosthesis and bone. By filling in all the small interstices of bone, it maintains a total, intimate contact with bone and thereby evenly distributes the pressure of the prosthesis.

The exothermic reaction has been of concern because of the fear of thermal injury to tissues adjacent to the bone cement. While temperatures as high as 80° C (176°F) have been recorded in the center of a sphere the size of a golf ball, the elevation is never as great when the cement is spread out over a surface in practical usage. Experiments[4] have been done that show no more than a 12° C (46°F) rise in temperature for about 30 seconds when used under simulated operative conditions.

*This has been corroborated by our own study of a specimen obtained one week after operation. There is minimal destruction of tissue or reaction adjacent to the cement. (see Figure 1). Note the preservation of marrow elements and the viable bone at the left of the figure. The cement is altered and partially removed in processing. It is present as refractile material at the right of the figure and in an adjacent foreign body giant cell (arrows.)

Figure 1



*Note: The author is grateful to Dr. Richard Jaqua and the Laboratory of Clinical Medicine for their help in the preparation and interpretation of this specimen.

PROSTHESIS

The development, or metamorphosis of the prosthesis and its application in hip replacement is an interesting story. Two main types of prosthesis are available, one with a metal to metal interface, and the other with metal to plastic. The metal to plastic (Figure 2) components were chosen for our own series, because of the low coefficient of friction between these two substances. Friction is important because it causes abrasion with the deposit of fine pieces of metal or plastic adjacent to the joint. These particles are felt to cause reaction, with gradual, painful sclerosis of the peri-articular tissues.

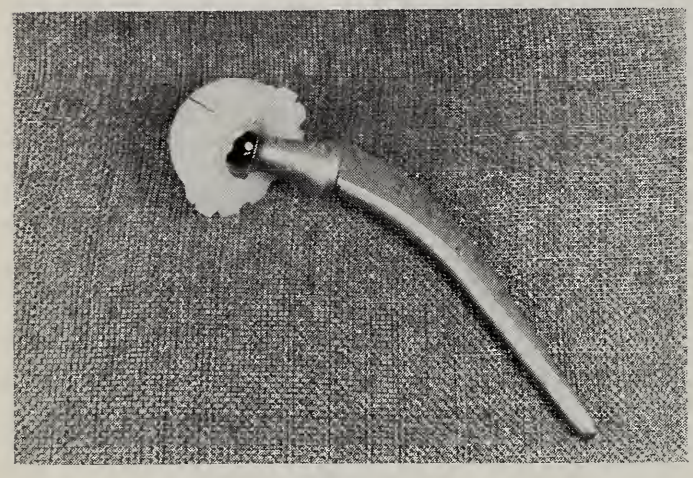


Figure 2

The plastic used is a high density polyethylene which has a low coefficient of friction, and is extremely resistent to wear and abrasion. Teflon was initially used by Mr. Charnley, but this was discarded because it did not hold its shape, produced significant debris, and failed within 2 - 3 years. Experience with the present material has indicated that it is strong enough to withstand normal wear and tear for 15 to 20 years.

The Charnley acetabular component has a 10 mm wall, with a 22 mm (⅞") socket. This has two advantages.

a) The thick wall deforms very little with stress and takes up some of the shock of weight bearing itself, rather than transmitting it all to the cement-bone bond.
b) The small diameter (22 mm) socket has less area, and therefore, has less friction than a larger socket.

Friction is the product of pressure x area, and by reducing the area, the friction is decreased.

BIOMECHANICS

Pressure is the other factor in friction. This is reduced by placing the acetabulum as far

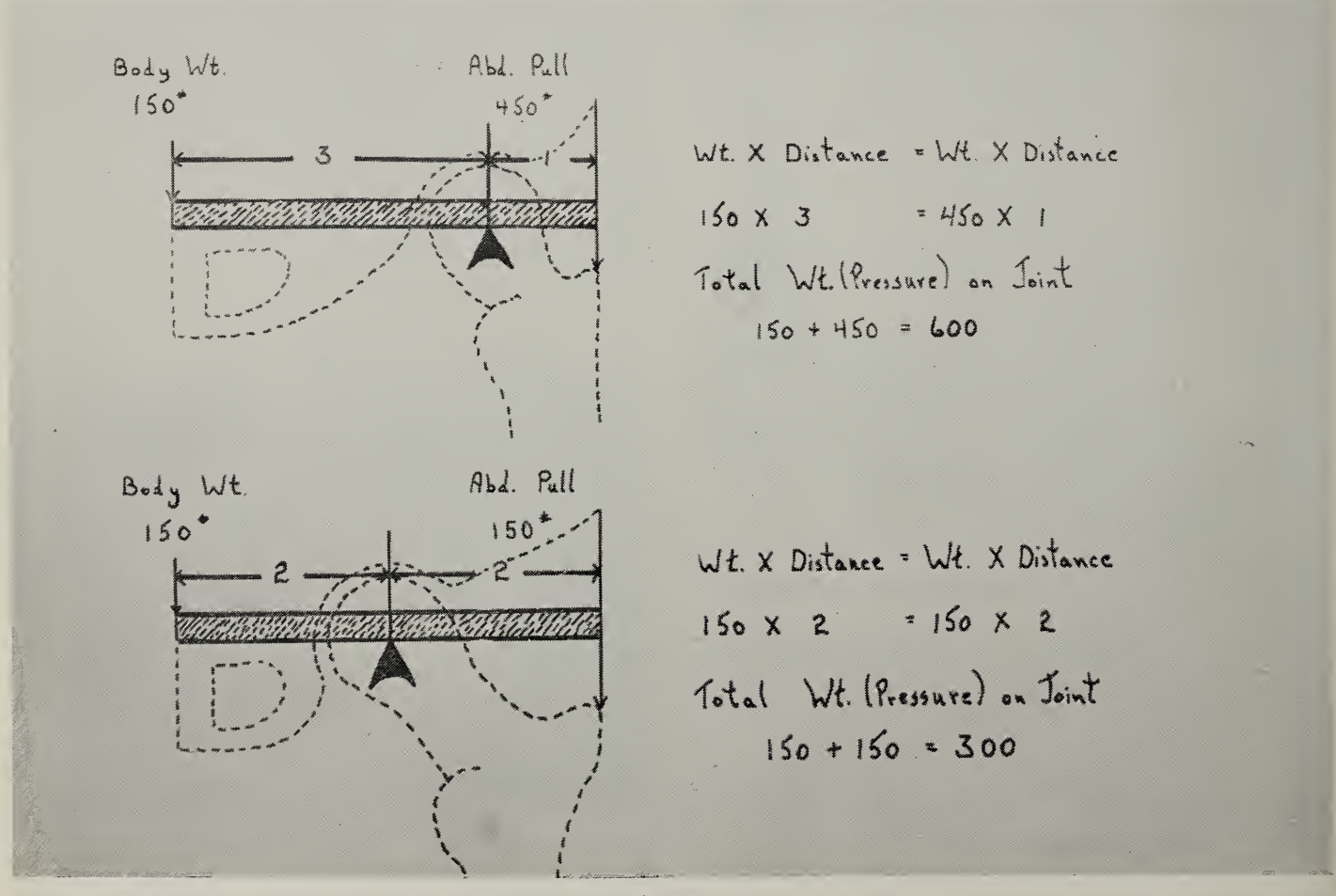


Figure 3

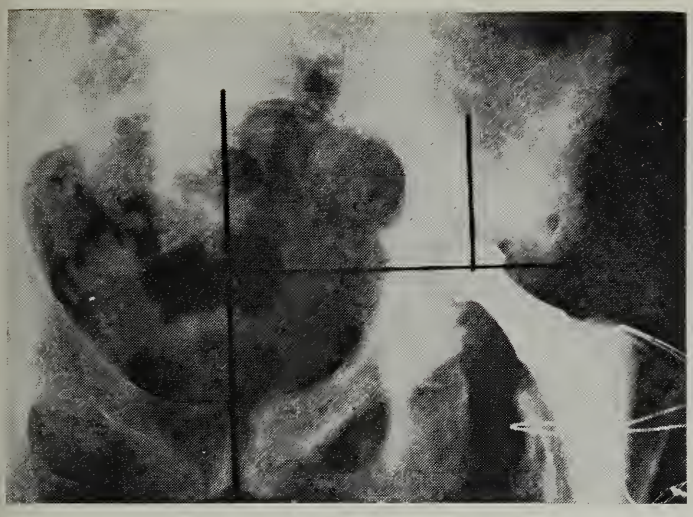


Figure 4

medially as possible, and moving the greater trochanter laterally. The lever arms acting on the hip joint are then altered as in this illustration. (Fig. 3 & 4)

As seen in the illustration, it also reduces the amount of pull necessary by the abductors to prevent a trendelenberg limp.

INDICATIONS

The indications for this operation are pain, abnormalities of gait and limitation of motion.

The pain will vary, requiring medication from aspirin to narcotics for its relief. The limitation of motion will be demonstrated as trouble putting on shoes and socks, cutting toenails, and getting in and out of the car. The gait will be demonstrated as a limp, or inability to get around without a cane, crutches, or a walker.

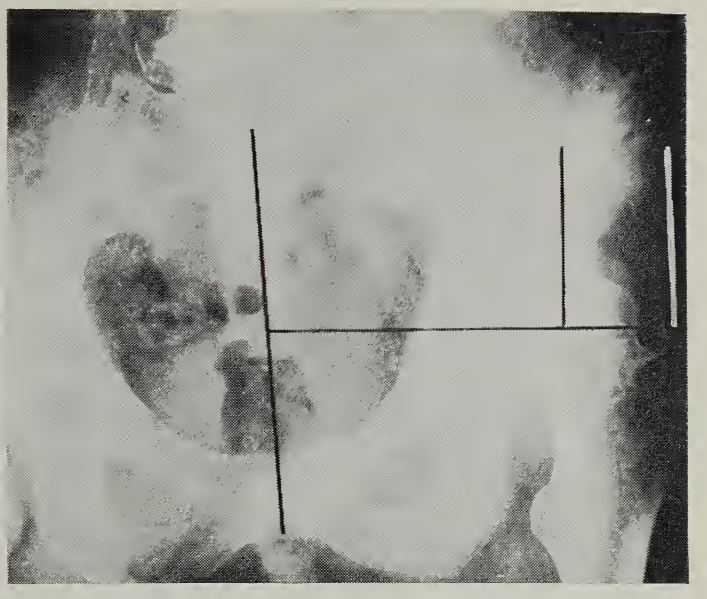
DIAGNOSIS

Our own first 100 cases included osteoarthritis, rheumatoid arthritis, avascular necrosis, and failed prosthesis or cup arthroplasties.

Osteoarthritis	71
Rheumatoid arthritis	5
Avascular necrosis secondary to	
a) Ununited fracture	8
b) Dislocation	2
Failed cup arthroplasty	9
Failed prosthesis	4
	100

AGE AND SELECTION OF PATIENTS

The selection of patients has been largely limited to the older age group. We do not know enough about the long-term effects of the cement, or the long-term wear of the prosthesis to advocate its use in younger patients. The average age of this series is 69.5 years, with a



range of 42 to 88 years. The younger people in this series were included because of their physiologic age and expected use of the prosthesis was in the older age category.

These patients must be in good enough health to sustain them through a major operation. The average operating time is 105 minutes, and approximately three (3) units of blood are used per case.

Also, symptoms should be severe enough to warrant an operation of this magnitude. Unless some other factor enters in, such as a failed hip nailing or arthroplasty, the pain factor should be significant. This is not an operation for the patient with minimal symptoms.

METHOD OF NUMERICAL RATING

The three categories of pain, gait, and range of motion have been rated on a one to six scale for ease of classification.[5]

Pain:

1. Severe spontaneous
2. Severe on attempting to walk prevents all activity.
3. Tolerable permitting limited activity.
4. Disappears quickly with rest.
5. Slight or intermittent less with activity.
6. None.

Gait:

1. Bed-ridden — cannot walk
2. Distance limited with or without sticks.
3. Gross limp — limited with sticks.
4. Moderate limp — use stick.
5. Slight limp.
6. Normal gait.

Grade	Total Reviewed Pre-Op Pain	Gait	ROM	50 Cases at Six Months Post-Op Pain	Gait	ROM
1	5	4	13			
2	9	26	13			
3	32	14	16			2
4	3	5	5	1	10	18
5	1	1	3	5	25	26
6				44	15	4
	Number of cases				Number of cases	

Range of Motion:

(Total for flexation, abduction, adduction, and rotation.)

1. 0-30
2. -60
3. -100
4. -160
5. -210
6. -260

RESULTS

All patients were graded by the above method prior to operation. We have now regraded 50% of the patients at their six months post-operative visit. The results are as indicated above.

This demonstrates the relief of pain that the majority of cases have shown. In only one case have we had less than a 5 rating in relief of pain. The gait is improved, and crutches have been discarded in favor of a cane or nothing at all. Most patients walk without a limp. The range of motion has also improved, but never to what would be considered normal. The range is usually sufficient to permit the patient to put on his shoes and socks.

Of the ten (10) patients graded again at one year, all have maintained their grade, or improved from their previous six months mark.

An advantage of this procedure is a shortened post-operative course, averaging about three weeks. The first week is spent in bed, and the next two in progressive physiotherapy. Immediate full weight bearing is encouraged, protecting the transplanted greater trochanter with crutches for six to eight weeks. This shortened time in the hospital, plus shortened time on crutches, offers a distinct socio-economic advantage over other fors of arthroplasty with a more lengthy convalescence. Also, in this elderly age group, the goal of a strong, pain-free mobile hip is much more readily obtained than with other forms of arthroplasty.

COMPLICATIONS

While the excellent results of this procedure merit its use, the dangers must not be overlooked. This is an operation of great magnitude, requiring technical skill, as well as a thorough knowledge of the biomechanics and physiology involved.

a) INFECTION is the complication most feared. Should this occur, using this massive implant, it is possible to bring this under control without complete removal of the metal, plastic, and cement. This results in a so-called Girlestone operation, with resultant instability and shortening.

To date, there has been no infection. This is stated, fully aware that late infections do occur and have been reported up to three years after operation. As this is a preliminary report, this type of late occurring infection remains a possibility.

b) PHLEBITIS is another common complication of arthroplasty. Harris[6] reported a 39% incidence of thromboembolic disease in elective cup arthroplasties of the hip, a procedure of similar magnitude as the total hip replacement. Welch[7] noted a 3.3% incidence of thrombophlebitis and a 2.3% incidence of pulmonary embolism in the total hip procedure. Two cases of phlebitis have occurred in this series. One at four months post-operative, and the other in the immediate post-operative period. One case of pulmonary embolism occurred three months after operation.

c) CARDIOPULMONARY COMPLICATIONS in this age group would be expected. Three cases of paroxysmal tachycardia, and two cases of pulmonary atelectasis have been seen.

The only death in this series was due to pulmonary insufficiency. The patient was a man with severe rheumatoid spondylitis involving the rib cage, and limited pulmonary function. He died on the seventh post-operative day in

spite of all available pulmonary aids.

d) DISLOCATION of the prosthesis has occurred once, three weeks post-operative. This was treated by immediate closed reduction and maintenance of the abduct position for the next two weeks. There have also been two cases of "clicking" which occurred in a forced flexed position. This has been shown on one case to be a momentary dislocation. The clicking has caused the patient no disability or harm. Avoidance of the aggravating positions have avoided recurrence of the "clicking."

e) NON-UNION of the greater trochanter has occurred in two patients. One of these was in a twice operated patient with avascular necrosis secondary to fracture. The other was in a fresh case. Neither patient has had sufficient complaints as yet to warrant a re-operation.

f) PERONEAL PALSY with drop foot has occurred in three cases. One of these occurred at home after discharge from the hospital. These have all been transient and have recovered. The etiology is due to extrinsic pressure on the peroneal nerve during the post-operative convalescence.

Our means of avoiding these complications are listed with the complications:

a) Infection 0%	1) Careful selection of patient 2) Strict attention to skin preparation 3) Antibiotics used pre and post-op 4) Double mask, double glove technique 5) Suction of all wounds 6) Cut down traffic in OR 7) Keep operative time to a minimum
b) Phlebitis 3%	1) Thromboembolic stockings 2) Post-op anti-coagulation 3) Immediate calf exercises
c) Cardiopulmonary 5%	1) IPPB Post-op 2) Carefully evaluated by internist pre and post-op.
d) Dislocation of Prosthesis 1%	1) Strict attention to technique 2) Maintain abducted position post-op.
e) Non-Union of Greater Trochanter 2%	1) Strict attention to reattachment procedure. 2) Protect with crutches for six - eight weeks.
f) Peroneal Palsy 3%	1) Pad knee well post-operative.

SUMMARY

Total hip replacement offers a new and effective means of dealing with painful arthritic hips. The low friction arthroplasty has certain biomechanical advantages that make it an excellent procedure in treating hip disease. This procedure must be reserved for the elderly while further data is being gathered. Complications can be kept to a minimum by careful attention to technique and selection of patients.

The author is grateful to Drs. Giebink and Nice for their continued help and encouragement in this project.

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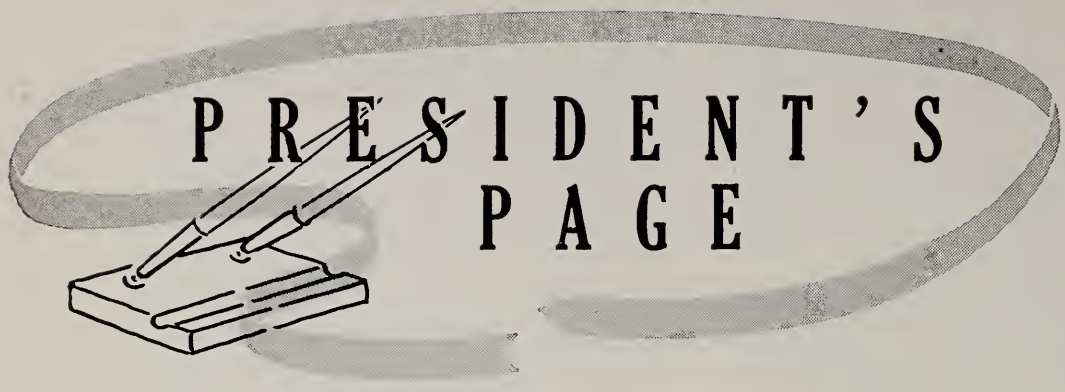


It would first of all seem appropriate to thank Dick Erickson for his eight years of service as our Executive Secretary and for the effective representation he has given us. We certainly wish him well in his position as Executive Director of Blue Shield. In addition I wish to welcome Bob Johnson as our new senior administrator and to pledge our assistance and cooperation in the activities of the South Dakota State Medical Association. I also wish to thank the members of the Medical Association for allowing me the priviledge of serving as your president.

This letter begins the new year as far as the State Medical Association is concerned. Each years seems to become more eventful and to have more effect upon the way medicine is practiced and I am sure this year will be no exception. Many topics will lend themselves to discussion during the year; namely, federal legislation affecting medicine, medical education, peer review, HMO's, recertification, and medical foundations.

By the time of publication of this June edition of the **South Dakota State Medical Journal,** the primary election will be over and campaigning will begin in earnest for the general election. It has become increasingly apparent that the practice of medicine is involved with the federal government at an ever accelerating pace and it has also become apparent that medicine's cause can best be served through legislative influence. Certainly medicine and other groups cannot always have their own way; however, it is hoped that continued dialogue with those in public office will allow the formation of medical programs most appropriate for the public at large and compatible with the aims of those in the medical profession. Some physicians have been critical of medicine's activity in political action committees. However, I know no alternative that has a better chance of affecting the outcome of federal legislation favorably than does the concerted effort of various PAC organizations allied with medicine, business, etc. Certainly the legislative activity in Washington will not go away if it is simply ignored. The importance of medical political action grows stronger yearly and I urge all members of our association to join SoDaPAC and AM PAC and to become involved in the campaigns of the candidates of their choice. The need for physicians to be able to have rapport with our elected representatives in state and federal government has never been greater.

W. R. Taylor, M.D.

Letters to the Editor

May 4, 1972

G. Robert Bartron, M.D., President
South Dakota State Medical Association
711 North Lake Avenue
Sioux Falls, S.D. 57104

Dear Dr. Bartron:

I would like to express my appreciation to you and to the State Medical Association for the $200 contribution to cover our travel expenses to the recent Student American Medical Association national convention. I know that my meager medical student budget would have suffered without your generosity.

Two freshman students, John Miner and myself, made the trip to Los Angeles. We were impressed with the healthy (no pun intended) spirit of constructive student activism. Now, of course, we would like to put some of our ideas to work back home.

We would welcome the opportunity to exchange, with you and other State Association members, ideas on medical education and health care delivery for the State of South Dakota.

Thanks again!

Sincerely,
Judson B. Reaney
SAMA President
USD School of Medicine

Mr. Robert Johnson
Executive Secretary
South Dakota Medical Association
711 North Lake Avenue
Sioux Falls, S.D. 57105

I wish to take this means of formally thanking you in behalf of our faculty and students for the very generous check in the amount of $9,384 from the American Medical Association.

The contribution represented in this check will play an important role in support of our Medical School program, especially in these days of "tight money."

Sincerely yours,
Earl B. Scott, Ph.D.,
Acting Dean

Earl B. Scott, Ph.D., Acting Dean of the University of South Dakota Medical School presents the 1972 Incoming Sophomore SDSMA Scholarship to Tom Van Bruggen.

Dean Scott presents the 1971 Incoming Freshman SDSMA Scholarship to Don Oliver.

RADIOLOGIC CASE PRESENTATION No. 9

Martin Frank Petereit, M.D.*

Carefully study the films in Figures 1 through 4 without reading the descriptions. What do you conclude? The over-all picture is virtually pathognomonic of this interesting entity.

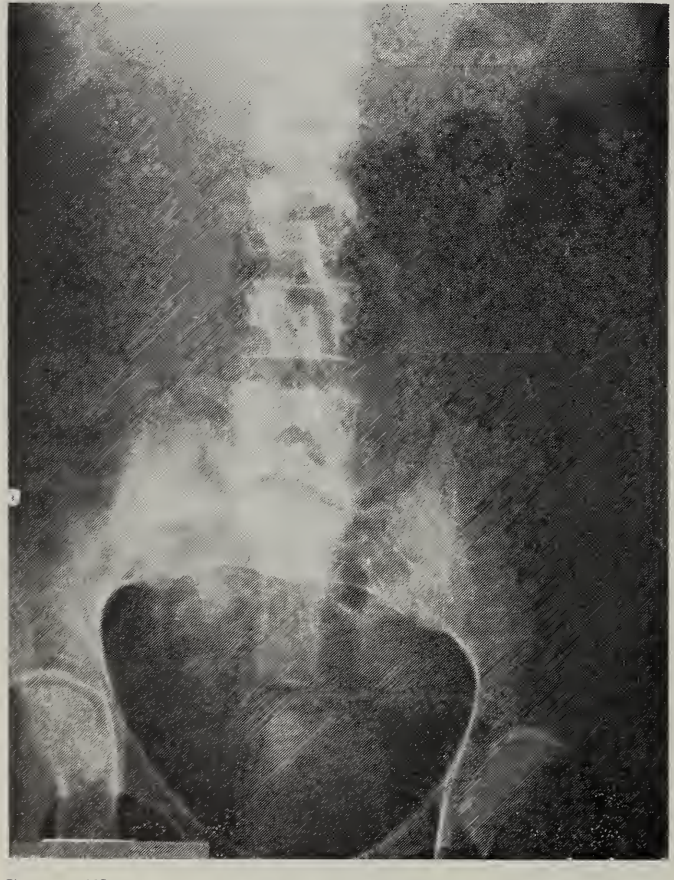
This 42-year-old Indian female was in the back seat of a car that was parked on a highway (it had run out of gas). It was hit from the rear by another automobile. Upon her arrival at the hospital, she was intoxicated and complaining of pain in the left shoulder, left lower rib cage, and abdomen. Her blood pressure was 80/40 and the pulse rate was 92/min. Urinalysis revealed 4 plus protein and gross blood. The hemoglobin was 11.0 gm/100 ml. and the hematocrit 34 vol %. Roentgenograms showed a fractured left clavicle and left 10th rib. There was also some density in the left lower lung field, possibly contused lung. There were no bowel sounds.

She received blood transfusions and was closely observed. Two days after admission, there was distention and tenderness in right mid-abdomen. A ruptured kidney was suspected. On the 3rd day, she was passing gas per rectum. A well defined mass was palpated extending from the right subcostal area to the iliac crest. On the 5th day, the hematuria ceased. By the 8th day, the mass was less tender and softer.

Sixteen days after admission, an intravenous urogram was done (Figures 1 through 4). This demonstrated a normal left collecting system, delayed excretion on the right, moderate dilatation and persistent visualization of the proximal right collecting system, and a large pocket of extravasated contrast medium medial and inferior to the right kidney. The patient re-

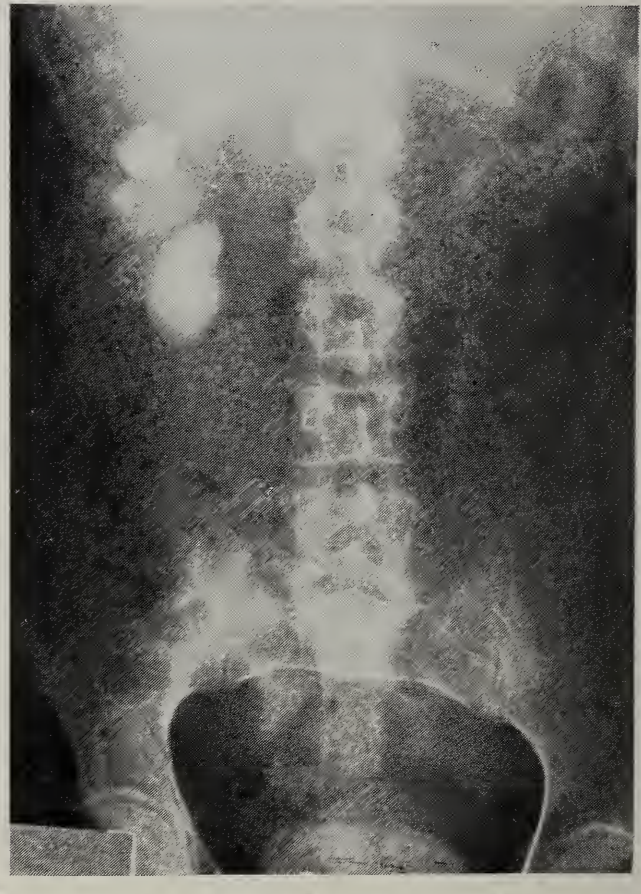
*Medical X-ray Center, Sioux Falls, South Dakota.

Fig. 1.



Scout film for an intravenous urogram. There is relative absence of gas in the hepatic flexure of the colon and the proximal transverse colon appears to be displaced downward to a slight degree. This should suggest an adjacent soft tissue mass.

Fig. 2.

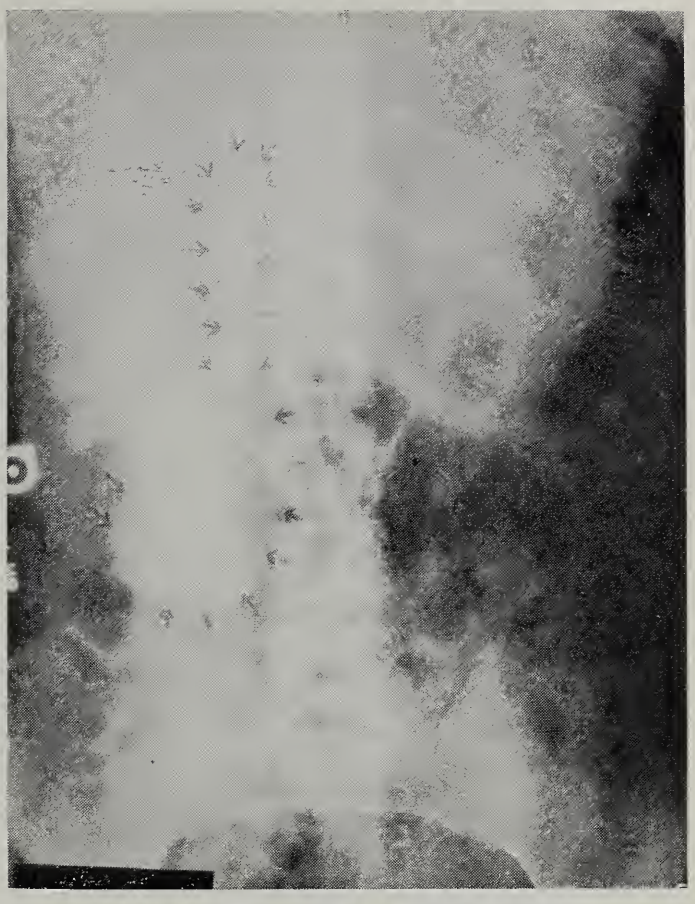


Thirty-minute film. There is moderate dilatation of the right collecting system proximal to the level of the ureteropelvic junction. Earlier films showed delayed excretion on the right and a normal left collecting system.

Fig. 3.

One hour film. There is persistent visualization of the right collecting system. In addition, contrast medium is accumulating medial and inferior to the renal pelvis.

Fig. 4.



Four hour film. There is again visualization of the proximal right collecting system, but to a lesser degree, indicating obstructive uropathy. A large pocket of extravasated contrast medium is demonstrated (arrows). The lower portion of this pool of dye corresponds to the gasless area on the scout film.

fused surgery and was discharged the following day.

DISCUSSION

Even though operative confirmation is lacking, this case is presented as a typical example of a **pararenal pseudocyst.**

Pararenal pseudocyst has also been called perinephric cyst, pseudohydronephrosis and perirenal cyst. Occasionally, it may surround a kidney (as a hydrocele surrounds a testis) and be known as "hydrocele renalis." These "cysts" may assume a variety of shapes, sizes and locations. Most lie adjacent to the renal pelvis or proximal ureter and partially surround or compress these structures. Most reported cases have followed accidental trauma, but it has followed operative procedures on the kidney or ureter. In one case, it followed spontaneous perforation by a urinary calculus. After a small tear develops in the pelvis or ureter, urine leaks into the periureteral tissues. This leakage may become persistent. It is thought that urine lyses fat cells and a fibroblastic reaction results that eventually encloses the accumulation of urine, simulating a cyst. This fibrous tissue wall has no epithelial lining, and therefore, it is not a true cyst.[1]

In experimental animals, it has been shown that a fibrous sac wall can be formed in 12 to 40 days. This problem is slowly progressive and may not become manifest for several weeks to 2 years after the trauma. The patient may have pain in the lumbar area and a palpable mass. The intravenous urogram may demonstrate: (1) no function; (2) hydronephrosis with decreased function; (3) renal displacement (usually upward or laterally) if the "cyst" is large enough; and (4) infrequently, calcification in the "cyst" wall. This is a serious problem, because, as the "cyst" enlarges, it compresses and obstructs the ureter and progressive hydronephrosis occurs. Early diagnosis and operative intervention (drainage and/or correction of the ureteral obstruction) are important or complete destruction of the kidney may result.[1]

REFERENCE

1. Emmett JL: **Clinical Urography. An Atlas and Textbook of Roentgenologic Diagnosis.** Philadelphia, WB Saunders, 2nd ed, 1964, Vol 2, pp 754-757.

This is your MEDICAL ASSOCIATION

Merritt A. Auld, M.D., Yankton, has been selected by the South Dakota Coaches Association to receive the Distinguished Service Award "for outstanding achievement and contributions to the high school athletic program, and dedicated loyalty to the highest and best in high school athletics." Dr. Auld has served as the team doctor for the Yankton Bucks since 1946, and he also served Yankton College in this capacity until 1969.

* * *

Physician lecturers participating in the annual session of the South Dakota Chapter, American College of Surgeons, included **R. E. Van Demark, M.D.; H. Phil Gross, M.D.; Jeffrey Hagen, M.D.** and **Patrick McGreevy, M.D.,** all of Sioux Falls, and Rapid City doctors, **D. E. Cameron, M.D.; C. F. J. Blunck, M.D.; W. J. Mattson, M.D.; C. B. Gwinn, M.D.; R. H. Harris, M.D.; H. E. Fromm, M.D.; R. R. Millea, M.D.; R. G. Burnett, M.D.** and **B. H. Allen, M.D.**

* * *

The Redfield Clinic announced the association of **Sterling Berg, M.D.,** formerly of Scotland, South Dakota. Dr. Berg attended the University of South Dakota, received his M. D. degree from the University of Nebraska, interned at Sacred Heart Hospital in Yankton, and he has practiced in Scotland for the past eighteen years.

Yankton State Hospital announced the association of **F. T. Sorum, M.D.** from Traverse City State Hospital who will assume the duties of clinical director, and staff physician **P. E. Aranas, M.D.,** from Wesborough, Massachusetts.

* * *

"Anatomy for Medical Record Personnel" was the special field of study at a workshop in Pierre sponsored by the State Medical Record Association. Speakers included **C. L. Swanson, M.D.,** Pierre; **R. H. Hayes, M.D.,** Pierre; **John Lowe, M.D.,** Vermillion; and **Dai Park, M.D.,** Pierre.

* * *

George Angelos, M.D., and **James Lydiatt, M.D.,** Hot Springs, have announced they will be moving to Billings, Montana, to plan and establish an emergency unit for St. Vincents Hospital. Dr. Lydiatt has practiced in Hot Springs since 1954 and Dr. Angelos joined Dr. Lydiatt in 1962.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

* * *

Participants in a nursing seminar in Aberdeen, "Fantastic Fluid Family" included **M. I. Herrera, M.D.** who spoke on "Imbalance in Cardiac Conditions" and **J. A. Eckrich, Jr., M.D.** who spoke on "Imbalance in Renal Disease."

* * *

Robert Buchanan, M.D., Huron, was one of three South Dakotans to receive a Citation for Meritorious Achievement in Public Service during the Honors Day program at the South Dakota School of Mines and Technology in Rapid City.

* * *

T. H. Sattler, M.D., Yankton, and **George Smith, M.D.,** Sioux Falls, interviewed John Hanlon, M.D., assistant surgeon general of the United States, on the South Dakota Educational Television network. Topics discussed were rural health care, marijuana, drug abuse and abortion.

* * *

Mr. Ron Brooks is the newly appointed Regional Manager for Berkeley Bio-Engineering, Inc., manufacturer of tonometric, obstetric and gynecologic instruments. His territory will include Iowa, Minnesota, North and South Dakota, and Northwestern Wisconsin.

MINUTES OF THE COUNCIL MEETING

9:00 a.m. **Ramada Inn**
Saturday, March 25, 1972 **Sioux Falls, South Dakota**

The meeting was called to order by Dr. Fred Leigh, Chairman of the Council. Those present for roll call were Doctors G. Robert Bartron, W. R. Taylor, T. H. Sattler, A. P. Reding, R. H. Quinn, J. J. Stransky, J. T. Elston, J. A. Muggly, David Seaman, G. E. Tracy, Bruce Lushbough, Fred Leigh, B. J. Begley, Eldon Bell; Commission Chairmen Doctors J. B. Gregg and E. H. Heinrichs, and Mr. Tom Edwards, student representative.

Dr. Muggly moved that the minutes of the last Council meeting be accepted as published in the Journal. The motion was seconded by Dr. Taylor and carried.

Dr. Gregg reviewed the report of the Commission on Legislation and Governmental Relations for the Council's information.

MINUTES OF THE MEETING OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS

10:00 a.m. **Executive Office**
Saturday, Feb. 26, 1972 **Sioux Falls, South Dakota**

Members Present:
Doctors Gere, Foley, Honke, Hayes and Gregg. Medical Student Representative - Mr. Charles Lord. Also present - Mr. R. C. Erickson and Dr. L. Amundson. Excused - Dr. Lillard.

Business Matters:

I. Legislative Review for 1972
   A. Sponsored Bills
      1. HB 778 - Health Professions Loan Fund Appropriation - $305,000 - **Final Passage.**
      2. HB 779 - Health Profession Loan Act - amends to allow a loan of up to $3,000 per year - **Final Passage.**
   B. Endorsed Bills
      1. HB 790 - Annual renewal fee for basic science from $10 to $20 - **Final Passage.**
      2. HB 848 - Creates three year medical school and appropriates $500,000 for transition. State Affairs Committee - Do Pass. Appropriations Committee - **No Action** Died in Committee.
      3. SB1 - Establishes pilot nurse physicians assistant program directed by State Health Advisory Committee for four counties - $200,000 appropriation - **Final Passage**
      4. SB 115 - Amends Nurse Practice Act to allow R.N. to perform certain duties and R.N. to perform certain duties and services delegated by the M.D. or hospital staff - **Final Passage**
      5. SB 164 - Provides immunity from liability for persons engaged in transplants, blood transfusions, etc., except for negligence - **Died in Committee**
      6. SB 223 - Eliminates smallpox immunization as prerequisite to entering school - **Final Passage**
   C. Bills of Interest
      1. HB 542 & 562 - Prohibits Board of Pharmacy from restricting advertising of drug prices by pharmacies- **Killed in Committee**
      2. HB 596 - Corrects uncertain wording in Podiatry Act - **Final Passage**
      3. HB 636 - Re-enacts Physical Therapy Licensing Law. Redefines practice, licensing procedures and raises licensing fees - **Final Passage**
      4. Placement of non-dentist on State Board of Dentistry - **Killed in Committee**
      5. SB 101 - Removes the $75,000 surgical-medical limit under workman's compensation and allows patient's selection of M.D. - **Killed in Committee**
      6. SB 184 - Requires Certificate of Need for new construction or expansion of medical (hospital) if cost is $50,000 or more - **Final Passage**
      7. SB 200 - Increases size of all professional licensing boards and requires Governor to appoint a non-professional to each board - **Killed in Committee**
      8. SB 213 - Amends Health Professions Loan Act to allow $5,000 per student per year and increases forgiveness to 15 percent additional for students returning to and practicing in a county with no town having over 5,000 people. Appropriates $500,000 - **Killed in Committee**
   D. Opposed Bills
      1. HB 820 - Requires Board of Regents to close medical school at USD and charges Board with responsibility of arranging with other states to educate South Dakota residents in medicine - **Killed in Committee**
      2. SB 87 - Requires prescription drugs to identify ailment or condition on label - **Killed in Committee**
      3. SB 112 - Prohibits all professions from restricting advertising of prices of goods and services - **Killed in Committee**

II. Uniform physical examination report forms for all colleges in South Dakota. Mr. Erickson was requested to communicate with Dr. Gibb and request that all colleges utilize the same forms and that the Board of Regents be requested to take action so that all colleges use the examination report form now employed at the USD to facilitate these examinations and to assist students in transfer from one institution to another.

III. The letter from Mr. Donald F. Foy of the AMA concerning the Health Manpower Committee of that organization was read. No action by the Commission.

IV. Abolition of smallpox immunization as a prerequisite for admission to school was discussed briefly. No action necessary - already passed by 1972 legislature.

V. Mandatory PKU testing. It was the opinion of the Commissioners that mandatory testing has many pitfalls for the practicing physician and should be viewed with some concern. However, there is an excellent likelihood that legislation concerning this subject is to be introduced into the South Dakota Legislature at its next session by the Mental Retardation or other organization. This Association must formulate a stand in regard to it. Dr. Hayes reported that the South Dakota State Health Department will survey the M.D's of this state, the Pediatric Association and the state Pathology Association concerning their views in the matter and present these findings at the fall meeting of this Commission. The Medical Association will invite the Mental Health Association to present their proposed legislation to this Association prior to the next Commission meeting for consideration at that meeting. A member of the Mental Health Association will be invited to attend the next meeting of this Commission and present the case for the proposed legislation.

VI. Noise Pollution Law. At first glance the Industrial Safety and Health Act of 1970 may help reduce the injurious effect of noise in industry and on farms but does not apply to environmental noise pollution. There is an excellent likelihood that legislation will be introduced on a national level this year. The Commission will take no action but will watch developments.

VII. Brief discussion was had concerning poor communication between the AMA, the SDSMA and a district medical society recently. Dialogue will undoubtedly reach the AMA soon.

VIII. The USD Medical School. There was considerable discussion in the Commission concerning the future steps to be taken in the solution of medical school problem. No definite decisions were reached. However, it was the feeling of the Commissioners that the physicians of this state will have to be polled in regard to their opinions and status concerning the project. If the physicians are not behind it, the project will fail. This Commission will await further direction from the SDSMA as to the course to follow in the next session of the legislature.

J. B. Gregg, M.D.
Chairman

Dr. Reding moved that the Council accept the report of the Commission on Legislation and Governmental Relations. The motion was seconded by Dr. Bell and carried.

Dr. Heinrichs discussed the report of the Commission on Scientific Medicine.

MINUTES OF THE MEETING OF THE COMMISSION ON SCIENTIFIC MEDICINE

2:00 p.m. **Executive Office**
Saturday, Feb. 26, 1972 **Sioux Falls, South Dakota**

The meeting was called to order at 2:00 p.m. by Dr. E. H. Heinrichs, chairman. Present for roll call were Doctors E. H. Heinrichs, E. A. Schabauer, R. R. Thornton, T. A. Angelos, James C. Larson, H. Phil Gross and R. B. Leander.

Dr. Angelos moved that the Commission approve the minutes of the August 28, October 6 and January 10 meetings. The motion was seconded by Dr. Larson and carried.

The Commission discussed continuing medical education programs which have been set up in other states and the possibility of establishing such a program in South Dakota. Dr. Larson moved that the Commission approach the Council on this subject; that the Commission request authority to set up a program if the Council feels it would be worthwhile; that the Commission prepare a work paper which will give a summary of the problem and the options which are open to our Association which can be presented at the March Council meeting. The motion was seconded by Dr. Angelos and carried. Dr. Heinrichs appointed himself and Dr. Larson to prepare the informational paper prior to the March Council meeting.

The Commission discussed the questionnaire concerning the annual meeting which had been prepared by Dr. Thornton. (Questionnaire appears on page 26.) Dr. Angelos moved that the Commission recommend to the Council that in order to evaluate the State Annual Meeting, a questionnaire in this form be sent to all physicians prior to the annual meeting; that the questionnaire be sent to the attention of the doctor's secretary with the request that she have the doctor complete the form in order to get a good return on the survey. The motion was seconded by Dr. Thornton and carried.

The Commission reviewed the statement on the "Revised Schedule for Active Immunization" which has been approved by the Committee on Infectious Diseases of the American Academy of Pediatrics. (Statement follows on page 27.) Dr. Larson moved that the Commission recommend to the Council that this statement be approved by the State Medical Association; that the physicians in the state be informed of this approval through a combined announcement through the State Health Department. The motion was seconded by Dr. Angelos and carried.

The Commission reviewed the statement on rubella vaccine. (Statement on page 27). Dr. Schabauer moved that the Commission not recommend endorsement of this statement by the South Dakota State Medical Association until such time as information has been obtained from the South Dakota Obstetric and Gynecology Society and the State Health Laboratory on its ability to complete the testing recommended in the statement. The motion was seconded by Dr. Angelos and carried.

The Commission reviewed the statement on smallpox vaccination but no action was taken.

Dr. Leander discussed the operation of alcohol treatment centers in South Dakota. Dr. Leander moved that the Commission bring to the attention of the Council that the present centers for the treatment of alcoholics and their earlier detoxification programs are being formed without any medical supervision. The Commission recommends that the authorities responsible for the formation and funding of these centers require that medical supervision be incorporated into their basic structure. The concept that alcoholism is a disease is well founded and should be treated as such. This in no way would detract from the very important roll that ancillary personnel play in the program. The present handling of the alcoholic programs must have medical supervision or the programs will become nothing more than another innovation for the expenditure of federal and state funds. The motion was seconded by Dr. Angelos and carried. Dr. Heinrichs stated that if this statement is approved by the Council, it should be forwarded to the Commission on Mental Health and Mental Retardation in Pierre.

Dr. Schabauer discussed BCG tuberculin vaccination. After considerable discussion, Dr. Larson moved that further discussion be tabled at this time. The motion was seconded by Dr. Leander and carried.

Dr. Heinrichs announced that the AMA was sponsoring a meeting on drug abuse in Scottsdale, Arizona, in April. Dr. Leander will represent the Commission at this meeting.

Dr. Larson moved that the Commission express to the Council our grave concern that due to the inability of physicians to make a concerted effort in the drug abuse problem, that programs are being taken over by lay people. The problem is epidemic and the Commission feels direction is needed as to what we can do to stem the tide. The motion was seconded by Dr. Schabauer and carried.

A suggestion was made that perhaps a conference on drug abuse could be scheduled by the State Medical Association in conjunction with the State Commission on Mental Health and Mental Retardation where each district would send a representative and an attempt could be made to draw up some type of plan for development of community programs which would involve medical doctors.

The meeting adjourned at 5:00 p.m.

A discussion was held concerning the possibility of establishing a continuing education program for the doctors in South Dakota.

SYNOPSIS OF CONTINUED POSTGRADUATE EDUCATION PROGRAMS FOR PHYSICIANS

Federal legislation, especially the Kennedy Bill on National Health Insurance, but also other legislative pieces contain obligatory standards for continued postgraduate education for physicians. To counteract any mandatory regulations the AMA through its Council on Medical Education and its Advisory Committee on Continuing Medical Education affirmed (February 24 and March 12, 1971) that State Medical Associations should be encouraged to consider the establishment of an accreditation program for postgraduate education for physicians, which would parallel a similar program on the national level.

The AMA Council on Health Manpower in a statement (September 13, 1971) also encouraged constituent medical associations "to investigate the desirability of requiring from their members periodic documentation in continuing education as a condition for continued medical society membership."

Based on these recommendations the Commission on Scientific Medicine surveyed, during the past year, the existing programs and presents to the Council

this synopsis with options if the the Council is willing to embark on any programs.

A. **Existing Programs**

1. Voluntary
   a. AMA - Physicians Recognition Award: requires 150 qualified credit hours over a period of three years.
   b. Certificate of Continuing Education of the American Academy of Family Practice (AAFP) requires 150 qualified credit hours over a period of three years.
   c. Washington State Medical Association: has a $10 annual allocation of Association dues for continuing medical education to finance a multifacetted program in that state.
2. Mandatory
   a. Oregon State Medical Association Program: no details are known except that the mem- of that Association, in order to retain membership have to fulfill certain postgraduate educational requirements. According to the newspapers this is presently being contested in the courts.
   b. Pennsylvania State Medical Association Program: plans to have a program similar to Oregon's: requiring 150 credit hours over a period of three years. Present status is unknown.
   c. Medical Society of Virginia: is planning to have a program similar to Oregon's: Present status is unknown.
   d. New Mexico Program: The State Board of Medical Examiners requires 120 hours of continuing education in a three year period. The first period will be finished December 31, 1974, therefore no court test has yet developed. Provisions were made in the original bill should the enforcement of these requirements jeopardize the availability of physicians in the community. Voluntary awards are accepted (as AMA or AAFP)
   e. California Medical Association (CMA) Certificate in Continuing Medical Education: requires 200 credit hours of continuing medical education in three consecutive years from accredited programs. At present the program has very little clout as far as physicians are concerned, however hospitals who want to admit Medi-Cal patients have to be certified by the CMA and one of the most important survey elements is a viable community hospital based education program. Finally continued membership of physicans in the CMA will depend on acquisition of this certificate. This program has, for the time being, put on ice in the California Legislature an intended addition to the Medical Practice Act that would have required each physician, in four year intervals, to show evidence of postgraduate education or to take a challenging examination, similar to the New Mexico Program.
   f. Joint Commission on Accreditation of Hospitals: requires monthly educational meetings of the hospital staff.
   g. American Cancer Society: requires, for hospitals who maintain a Cancer Registry, monthly educational meetings on cancer.
   h. New York Public Law 89-97: established criteria of participation in Title XIX programs, namely 150 credit hours every three years.
      Exempted: Members of the AAFP, members of specialty groups or active staff members in JCAH approved hospitals. This provision has not yet been enforced and/or challenged in the courts.

As of January 21, 1972 a total of ten state Medical Associations (e.g. Arizona) have indicated that they are either implementing a program of accreditation or considering doing so after approval of actual plans to carry out such a program.

B. **Goals**

In considering any program of postgraduate education for South Dakota, one should keep the following goals in mind:

1. It should improve the education of the physicians in South Dakota and thus better the medical care in the State.
2. It should reach all or almost all physicians in the State, in Lemmon and in Sioux Falls, in Hot Springs and in Rosholt.
3. It should serve all physicians, the general practitioner, the surgeon and the psychiatrist.
4. It should reach the hospital and the hospital unaffiliated physican.
5. It should be flexible enough, and consider education obtained outside of the State.
6. It should not decrease physicians availability during the time of instruction.
7. There should be a quality control of the program.
8. There should be some system of attendance control.
9. There should be some system of incentive, because the physician who does not avail himself voluntarily to such programs needs it most.
10. Under no circumstances should the program decrease the attractiveness of our State for the practice of medicine.

C. **Options**

1. General
   a. Require from each physican the AMA physicians Recognition Award.
      Advantage: ease of administration.
      Disadvantage: identification with AMA, even though to obtain the Award, one does not have to be a member of the AMA.
   b. Amend the South Dakota Medical Licensure Act with the requirement of continuing education as a prerequisite of extending the medical license.
      Advantage: ease of administration
      Disadvantage: involuntary, probably inflexible, would decrease number of physiicans in the State.
   c. Amend the Titles XVIII and/or XIX - Laws regarding post-graduate education.
      Advantage: ease of administration
      Disadvantage: involuntary, would not reach those physicans who have not contracted with Titles XVIII or XIX.
   d. Amend the South Dakota Licensure Law to require continued postgraduate education as an essential for hospital staff appointment.
      Advantage: ease of administration
      Disadvantage: unrealistic to obtain.
   e. Develop a voluntary South Dakota Plan, sponsored by the South Dakota State Medical Association, possibly in cooperation with RMP, South Dakota Hospital Association, University of South Dakota Medical School, State colleges, State Health Department and other interested organizations.
      Advantage: physician control of plan, voluntary, strengthening of the local hospital.
      Disadvantage: cumbersome to administer, costly.
2. Incentives
   a. Recognition Certificate
      Advantage: positive approach
      Disadvantage: unenforceable
   b. Discontinuance of professional privileges or certification, or both.
      Advantage: ease of administration
      Disadvantage: may have no impact in areas where there is no choice of physician available.
   c. Discontinuance of membership in State Association
      Advantage: ease of administration

Disadvantage: carries no weight, loss of control over the member completely.

d. Discontinuance of licensure or imposition of legal sanctions.
Advantage: difficult to administer
Disadvantage: might drive physician out of South Dakota, not yet court tested.

D. **Short Description of a Possible Plan of Action**
This description should serve as a working paper for the Council, but should not be construed as to prejudice the final outcome. Any and all steps will have to be authorized by the Council and the membership of the South Dakota State Medical Association.

1. Authorize an Advisory Committee on Continuing Medical Education (ACCME). This may be a part of, or the whole Commission on Scientific Medicine and may need additions from other organizations.
2. Have this Committee (ACCME) develop a plan regarding requirements for continuing medical education in South Dakota.
3. Have this Committee (ACCME) develop an organization and plan to accredit and certify educational programs in South Dakota, to give reciprocity to similar programs in other states and to recognize national programs.
4. Have this Committee (ACCME) develop certificates of attendance and attendance controls and certificates of completion.
5. Have this Committee (ACCME) develop a clearing house for available local programs, develop regional and state wide programs through available organizations and distribute them geographically and by time in order to enable each physican to attend postgraduate education without necessarily endangering the availability of the physician to his patients.

On any and all programs and plans, the Committee (ACCME) will report back to the Council and the House of Delegates, who have the sole authority to act on the plans and programs.

E. **Outlook**
All physicians have an obligation to continue their education but we, as the South Dakota physicians have also an obligation to see that all physicians can and will obtain it. Taking into consideration the physician distribution in the State and the geographical facts, one possible way to improve postgraduate education would be to utilize the JCAH - approved hospital in the State (Rapid City, Pierre, Aberdeen, Huron, Watertown, Mitchell, Brookings, Sioux Falls and Yankton) and beef up their monthly educational meetings and incorporate them in a State plan. The benefits would be manifold. A survey indicates that only twenty physicians live more than sixty miles away from these hospitals (Rosholt (1), Kadoka (3), Winner (2), Gregory (2) and Burke (1), Bowdle (1), Eureka (1), Mobridge (5), McLaughlin (1), Lemmon (2), Philip (1). Problems do not appear insurmountable especially since many locations are equally distant from two or more JCAH - approved hospitals. With more than one physician in many of these communities, medical care will not be depleted. Traveling teams with educational programs can be arranged. Regional meetings (as the Black Hills Seminar and the Sioux Valley Hospital Days) can be planned and made available easily to a larger audience.

E.H.H./J.C.L.
March 9, 1972

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AP Release, March 6, 1972:
For Doctors Only, Austin, Texas

Your doctor may be going back to school this year, and he can stay in the state while he's learning the latest techniques in medical care.

Texas medical schools, hospitals, and specialty societies are offering a variety of continuing or postgraduate education courses for Texas physicians throughout 1972, says the Texas Medical Association.

Fifty-six courses, covering general and family medicine, malignant disease, cardiovascular disease, psychiatry, nuclear medicine, pathology, radiology, surgery, and other topics, are offered to physicians in various locations over the state throughout the year.

Dr. Muggly moved that this matter be investigated further and that the Council empower the Commission on Scientific Medicine to appoint a committee to study this and establish a program for South Dakota physicians. The motion was seconded by Dr. Quinn and carried. Dr. Stransky moved that the Council accept the concept expressed in Paragraph D, Short Description of a Possible Plan of Action, for a continuing education program in South Dakota, and that the Commission report back to the Council as soon as possible. The motion was seconded by Dr. Bell and carried.

The Commission proposed an annual meeting scientific program survey.

ANNUAL MEETING SCIENTIFIC PROGRAM SURVEY

The Committee on Scientific Medicine solicits your opinions regarding the format of the scientific program for the annual meeting. Please check those statements which reflect your views or which most nearly reflect your views. Would you prefer:

——1. Didactic lectures on topics of current and general interest.
——2. Small discussion groups of 10 to 15 physicians led by "expert" i.e. round tables, seminars, or workshops. These would run concurrently to allow for a broad range of topic selection.
——3. Combination of (1) and (2) divided equally as to time.
——4. The theme or symposium format with several lectures and periods of discussion provided.
——5. South Dakota State Medical Association scientific meeting should run longer than one day to function effectively in continuing education.
——6. An accredited program in continuing education should be established by the South Dakota Medical Association as has been recommended by the Advisory Committee on Continuing Education of the American Medical Association.
——7. I attended ———(no.) meetings of the South Dakota State Medical Association since 1967.
——8. Future meetings should be held in either Sioux Falls or Rapid City.
——9. Should the scientific meetings and the busi-

ness meeting be held separately — at different times and places?

Dr. Bartron moved that Item No. 8 be changed to read that future meetings be limited to Rapid City, Sioux Falls and Aberdeen and that the Commission be authorized to proceed with the survey. The motion was seconded by Dr. Taylor and carried.

The Council considered the revised schedule for active immunization and tuberculin testing.

TABLE I

REVISED SCHEDULE FOR ACTIVE IMMUNIZATION AND TUBERCULIN TESTING OF NORMAL INFANTS AND CHILDREN IN THE UNITED STATES

2 mo.	DTP[1]	TOPV[2]
4 mo.	DTP	TOPV
6 mo.	DTP	TOPV
1 yr.	Measles[3]	Tuberculin Test[4]
1-12 yr.	Rubella[3]	Mumps[3]
1½ yr.	DTP	TOPV
4-6 yr.	DTP	TOPV
14-16 yr.	Td[5]	and thereafter every 10 years

[1]DTP - diphtheria and tetanus toxoids combined with pertussis vaccine.

[2]TOPV - trivalent oral polio virus vaccine. The above recommendation is suitable for breast-fed as well as bottle-fed infants.

[3]May be given at 1 year as Measles-Rubella or Measles-Mumps-Rubella combined vaccines (see Section (P. 127) Rubella and Section (P. 88) Mumps for discussion of age of administration.

[4]Frequency of repeated tuberculin tests depends on risk of exposure of the child and on the prevalence of tuberculosis in the population group.

[5]Td - combined tetanus and diphtheria toxoids (adult type) for those over six years of age in contrast to diphtheria and tetanus (DT) containing a larger amount of diphtheria antigen.

Tetanus toxoid at time of injury: For clean, minor wounds, no booster dose is needed by a fully immunized child unless more than 10 years have elapsed since the last dose.

For contaminated wounds, a booster dose should be given if more than 5 years have elapsed since the last dose.

Routine smallpox vaccination is no longer recommended.

Approved by the Committee on Infectious Diseases - October 17, 1971

Dr. Reding moved to accept the schedule as proposed. The motion was seconded by Dr. Bartron and carried.

The Council reviewed the statement on rubella vaccines.

RUBELLA VACCINES

More than 32 million doses of live attenuated rubella virus vaccines have been distributed in the United States since licensure in June 1969. The Committee is encouraged by the data on continuing persistence of vaccine-induced immunity. It reviewed the theoretical risk of transmission of vaccine-virus, the occurrence of joint manifestations following vaccination, and questions related to reinfection. The Committee reaffirms its previous recommendation for the use of rubella vaccine. Vaccine is recommended for all children between the age of one year and puberty, with the priority given to children in elementary school. To date, more than two-thirds of school age children have received vaccine.

At present, the Committee emphasizes the importance of administration of vaccine to:

(1) Unvaccinated school children, particularly girls approaching puberty.

(2) Seronegative women of child-bearing age who are not pregnant and who are on an acceptable regimen of pregnancy prevention for two months following vaccination. To extend vaccine use to this group, it will be essential to establish additional serologic testing programs.

(3) Preschool children, especially those attending kindergarten, day care centers, and other similar groups.

Approved by the Committee on Infectious Disease - October 17, 1971

No action was taken.

The Council considered the drug problem in South Dakota and the lack of coordination among the various drug programs. Dr. Lushbough moved that the Commission investigate what efforts were being made on the state level in drug education and attempt to coordinate the local programs with the state program by whatever means necessary and that the Commission report to the Council at a later meeting. The motion was seconded by Dr. Elston and carried.

Dr. Tracy moved that the Council commend the Commission on Scientific Medicine for their efforts during this past year. The motion was seconded by Dr. Elston and carried.

Dr. Stransky moved that the Council accept the report of the Commission on Scientific Medicine. The motion was seconded by Dr. Seaman and carried.

The Council considered the report of the Commission on Internal Affairs.

MINUTES OF THE MEETING OF THE COMMISSION ON INTERNAL AFFAIRS

10:30 a.m. Executive Office
Saturday, Feb. 26, 1972 Sioux Falls, South Dakota

The meeting was called to order at 10:30 a.m. by the chairman, E. A. Rudolph, M.D. Present for roll call were Doctors E. A. Rudolph, B. J. Begley, C. S. Roberts, S. M. Doubrava, E. J. Perry, C. R. Stoltz and James Shaeffer. Also attending the meeting was Bruce Vogt, student representative.

The Commission discussed the proposed group travel plans submitted by Nervig Travel Agency. Dr. Perry moved that the Commission recommend to the Council that the Association not sponsor a group tour at the present time. The motion was seconded by Dr. Stoltz and carried.

The Commission reviewed the status of loans granted through the Health Careers Loan Program and the loans which are outstanding from the Benevolent Fund to medical students. This information was accepted by the Commission.

The proposed budget for 1972-73 was reviewed by the Commission. The proposed budget has previously been approved by the Budget and Audit Committee and the Council. It will be submitted to the House of Delegates at the annual meeting in May. Dr. Stoltz moved that the budget be accepted by the Commission as presented. The motion was seconded by Dr. Shaeffer and carried.

The meeting adjourned at 11:30 a.m.

Dr. Lushbough moved that the Council accept the report of the Commission on Internal Affairs. The motion was seconded by Dr. Reding and carried.

The Council considered the report of the Commission on Liaison and Communications.

MINUTES OF THE MEETING OF THE COMMISSION ON COMMUNICATIONS AND LIAISON

10:30 a.m. Executive Office
Saturday, Feb. 26, 1972 Sioux Falls, South Dakota

The meeting was called to order by John Barlow, M.D., Chairman of the Commission. Those present for roll call were Doctors J. F. Barlow, Mary Sanders, Loren Amundson and R. E. Van Demark and student representative, Mr. Earl Lorenzen.

It was moved, seconded and carried that the minutes of the previous meeting be approved as published in the SOUTH DAKOTA JOURNAL OF MEDICINE.

The Commission reviewed the letter from the American Medical Association concerning the establish-

ment of the AMA Department of Health Manpower for their information. The executive office was directed to forward to the AMA Department of Health Manpower a copy of Senate Bill No. 1 which was passed by the South Dakota legislature and which is an act establishing a pilot project in public health services.

The possibility of holding a medical-legal seminar this year was discussed. The Commission determined that a medical-legal seminar should not be held this year in conjunction with Medical School Recognition Days as it has in the past.

Dr. Barlow reported on the meeting which he attended with Bob Johnson and Mr. William F. Hommman, Jr. of the AMA Department of Medicine and Religion. The Commission recommended that the executive office notify each district secretary that the AMA has information and materials available for the district's use regarding medicine and religion if any district wishes to sponsor this type of program. It was the Commission's feeling that medicine and religion programs should be held at the district level.

Mr. Bob Johnson reported on the legislature's activities concerning allied health professions for the Commission's information.

The Commission discussed the bill proposing a three year degree granting medical school. It was moved, seconded and carried that the Commission recommend to the Council that there be more planning and discussion as to what the future of medical education is in South Dakota.

Mr. Bob Johnson reported that the State Association office has distributed three copies of two pamphlets published by the AMA regarding national health insurance programs to the doctors in the state for their information and to enable them to answer questions asked by their patients.

The Commission thanked the student representative for attending and participating in the deliberations of the Commission meeting.

The meeting adjourned at 12:00 noon.

Dr. Tracy moved that the Council accept the report of the Commission on Liaison and Communications. The motion was seconded by Dr. Reding and carried.

The Council considered the report of the Commission on Medical Service.

MINUTES OF THE MEETING OF THE COMMISSION ON MEDICAL SERVICE

1:30 p.m. Executive Office
Saturday, Feb. 26, 1972 Sioux Falls, South Dakota

The meeting was called to order by B. C. Gerber, M.D., Chairman of the Commission. Those present for roll call were Doctors B. C. Gerber and Warren Jones and student representative, Mr. Bob Rose.

It was moved, seconded and carried that the minutes of the previous meeting be approved as published in the SOUTH DAKOTA JOURNAL OF MEDICINE.

The Commission reviewed the letter from the American Medical Association concerning the establishment of the AMA Department of Health Manpower for their information.

The Commission considered the request from Dr. Vogelgesang considering the establishment of Medical Audit Conferences in South Dakota. The Commission directed the executive office to contact Minnesota, Wyoming, Nebraska, Iowa, North Dakota, Rhode Island and Oregon for background information which these states might have regarding such conferences. The executive office was also directed to write Dr. Vogelgesang stating that we are investigating the concept of medical audit conferences and we appreciate his suggestions. Also, Dr. Vogelgesang should be invited to the next Commission meeting to discuss his viewpoints concerning such conferences.

The Commission considered the action of the Council whereby a Committee under the Commission on Medical Service is to be appointed to study coding terminology and keep up to date on proposed changes. Dr. Gerber and Dr. Jones will serve on this Committee.

The Commission considered the Association giving a freshman and sophomore tuition scholarship to the South Dakota University medical school. It was moved, seconded and carried that the State Medical Association pay the full tuition, including the raise in tuition if economically feasible, for a freshman and a sophomore student at the South Dakota University medical school.

The Commission considered the request from SAMA for financial assistance in sending a delegate to the SAMA annual meeting. It was moved, seconded and passed that the Association donate $200 to SAMA to be used toward travel expenses for the National meeting.

Dr. Jones discussed the shortage of cadavers at the medical school and the difficulty the school is having in getting cadavers from the Yankton State Hospital. The Commission directed the executive office to write Dr. Behan about this problem and ask for his cooperation in resolving this situation. If this action does not alleviate the situation, the Commission should be informed so further action can be taken.

The meeting adjourned at 3:15 p.m.

Dr. Sattler moved that the Association donate two full tuition scholarships to the Medical School, one for a freshman and one for a sophomore. The motion was seconded by Dr. Seaman and carried. Dr. Taylor moved that the Association donate $200 to the SAMA group to be used by delegates for travel to the national SAMA annual meeting. The motion was seconded by Dr. Lushbough and carried.

The Council considered the problem of the shortage of cadavers for use at the Medical School. The executive office was directed to contact Dr. Scott at the Medical School regarding this problem and offer the assistance of the Association in resolving this problem.

Dr. Quinn moved that the Council accept the report of the Commission on Medical Service. The motion was seconded by Dr. Tracy and carried.

The Council noted that attendance at some of the Commission meetings was very poor and suggested that members make every effort to attend these meetings. The Council also urged that the Commission chairmen or their representatives attend the Council meeting.

Mr. Erickson reviewed the report from Mr. May concerning malpractice coverage in South Dakota. He reported that a Hartford Insurance agent has offered to work up a group coverage for the state if the physicians are interested. Dr. Sattler moved that the executive office contact the Hartford Insurance agent for further details and an explanation of what might be involved in such group coverage but not necessarily a proposal. The motion was seconded by Dr. Taylor and carried.

The Council discussed the possible establishment of family practice residency programs in South Dakota. It was the concensus of the Council that the criteria set forth for establishing a family practice residency program is not applicable to the rural areas such as South Dakota. Dr. Bartron moved that the AMA delegate and the AMA alternate delegate consult and be authorized to submit to the AMA on behalf of the South Dakota State Medical Association a resolution embodying the concept of considering changes in the criteria for postgraduate education in family practice so that they be applicable to rural areas. The motion was seconded by Dr. Lushbough and carried. The Council also directed that this resolution be sent to the American Academy of Family Physicians through delegates, A. P. Reding, M.D., and P. K. Aspaas, M.D.

The Council considered the Statement on Concurrent Care presented by the State Utilization and Insurance Review Committee.

(Continued on Page 46)

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STATEMENT ON CONCURRENT CARE

Presented by Utilization and Review Committee
C. B. McVay, M.D., Chairman
Harvard Lewis, M.D.
Roscoe Dean, M.D.
E. S. Palmerton, M.D.
H. Russell Brown, M.D.
W. O. Rossing, M.D.

The State Utilization and Insurance Review Committee is attempting to establish guidelines that would not routinely allow concurrent care of a patient. This simply means that two or more doctors cannot be compensated for the daily hospital care of a patient. The Relative Value Study is explicit regarding post operative care. Should a patient develop complications during the course of an illness that are beyond the knowledge of the primary physician, a second physician may act as a consultant and submit a consultant's fee. If the course of an illness would indicate that the consultant could manage the case better, then the patient may be transferred to the care of the consultant physician. However, the primary physician may no longer be compensated for daily hospital charges. Unusual cases that involve the attention of multiple physicians will be considered only if adequate documentations of the necessity accompany the physicians' bills.

Dr. Lushbough moved that the Council accept this statement. The motion was seconded by Dr. Tracy and carried. The Council directed the executive office to distribute this statement to the physicians in the state with the last sentence set apart and underlined for emphasis.

Mr. Erickson briefly reviewed the arrangements for the annual meeting to be held at the Ramada Inn in Sioux Falls.

Nominations were in order for recommendations to the Governor for an appointee to the Board of Medical and Osteopathic Examiners to replace R. A. Buchanan, M.D. whose term expires July 1, 1972. Dr. Tracy nominated Dr. R. A. Buchanan as first choice. Dr. Quinn nominated Dr. Anton Petres for second choice and Dr. Wallace Arneson as third choice. The Council determined that if one of the nominees refused, Dr. John McGreevy be listed as a third choice. Nominations ceased and the executive office was directed to submit these names to the Governor for appointment.

Mr. Erickson discussed the possibility of holding a seminar on the Medical School on Thursday, May 4, prior to the annual meeting. The Council appointed Dr. J. T. Elston as chairman of the seminar. The executive office was directed to contact the following to attend the seminar as resource persons: Dr. C. B. McVay, Dr. Henry Parrish, Dr. G. Robert Bartron, Dr. G. E. Tracy, Dr. Rinker, Dr. Karl Wagner, Dr. Lloyd Sweeney, Mr. Henry Morris and Mr. Wally Baas. Dr. Bartron will present a brief summary of the situation concerning the Medical School prior to the open forum session.

The Council considered the request from Comprehensive Health Planning that a physician be recommended to the Governor for appointment to the State Alcoholism Advisory Council. Dr. Leigh nominated Dr. B. T. Lenz to serve on the State Alcoholism Advisory Council. The motion was seconded by Dr. Sattler who urged that Dr. Lenz consult with the Commission on Scientific Medicine for their recommendations and understanding of this problem. The motion carried.

Dr. Bartron conveyed a message from Dr. Hayes on behalf of the State Health Department and the State Medical Association thanking Mr. Erickson and Mr. Johnson for their work during the legislative session.

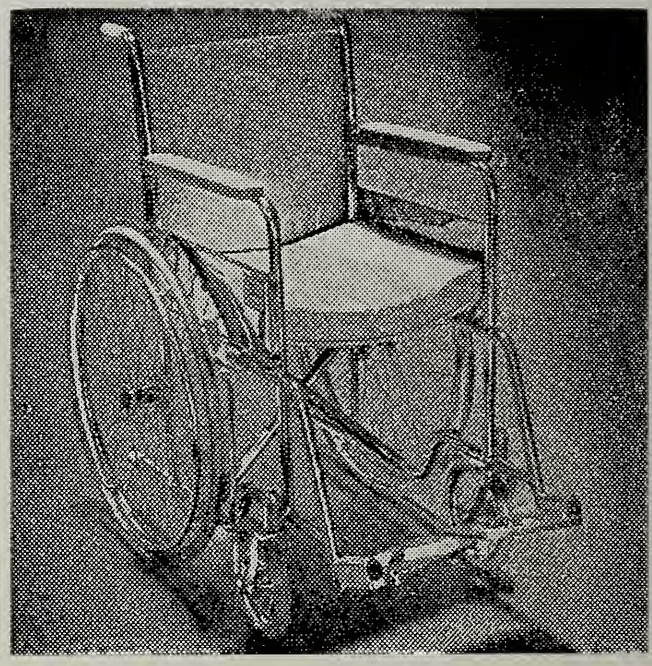
The Council reviewed and discussed a newspaper article concerning heart surgery being done in South Dakota. Dr. Tracy moved that the Council request the Aberdeen District Councilor to discuss this matter with his district and request the district to set up guidelines for liaison with the news media. The motion was seconded by Dr. Stransky and carried. The Council directed the Councilor from the Watertown District to send a copy of the Watertown District censorship rules to the Aberdeen District and to the Association office.

Mr. Tom Edwards discussed the problems which the students at the Medical School have had with the Microbiology Department. He stated that Dr. Porter and Dr. Smith from the University of Iowa observed the Microbiology Department and made several recommendations which the University has agreed to study and carry out. Dr. Tracy moved that the Council inform the Commission on Medical Service of this problem so they can gather information and be apprised of the situation for future reference. The motion was seconded by Dr. Stransky and carried.

The Council then met in executive session at which time Mr. Richard Erickson submitted his resignation as executive secretary of the South Dakota State Medical Association. A motion was made, seconded and passed accepting Mr. Erickson's resignation with regret. A motion was made, seconded and carried to hire Mr. Robert D. Johnson as executive secretary, effective May 1. The financial arrangements agreed upon are on file in the Association office.

Dr. Sattler moved that the Council authorize Mr. Robert D. Johnson's signature to be utilized on all bank accounts and certificates of deposit held by the South Dakota State Medical Association. The motion was seconded by Dr. Bartron and carried.

The meeting was adjourned on motion at 4:00 p.m.



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COURSE OFFERED ON EMERGENCY CARE

The Committee on Injuries of the American Academy of Orthopaedic Surgeons will conduct a course on emergency care in Madison, Wisconsin on August 28 through September 1, 1972.

The course is specifically aimed at ambulance, civil defense, industrial safety, and public health personnel; emergency medical technicians, emergency squads, volunteer rescue squads, firemen, policemen, safety engineers, and nurses.

For additional information concerning tuition, location of course, etc., please contact American Academy of Orthopaedic Surgeons, 430 North Michigan Ave., Chicago, Illinois 60611.

COURSE OFFERED IN CURRENT CONCEPTS IN ALLERGY AND CLINICAL IMMUNOLOGY

More than two hundred physicians from throughout the United States are expected to gather in Seattle, Washington on July 17, 18, and 19, 1972, for an intensive instructional course in current concepts in allergy and clinical immunology.

The course, sponsored by the American Association for Clinical Immunology and Allergy, is being designed to assist physicians in their preparations for the forthcoming certification examination to be given by the new Conjoint Board in Allergy. Additional information on the course may be obtained from the American Association for Clinical Immunology and Allergy, Post Office Box 912 DTS, Omaha, Neb., 68101.

SDSMA SCHOLARSHIPS AWARDED

Thomas Van Bruggen, a freshman from Vermillion, South Dakota, was chosen as the recipient of one of the South Dakota State Medical Association scholarships. The award was presented to Mr. Van Bruggen at the annual Student American Medical Association banquet on April 8th.

Also recognized at the banquet was the 1971 freshman awardee, Donald Oliver.

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LIPID RESEARCH AT USD

Dr. Paul Smith, Chairman and Professor of the Department of Microbiology at the University of South Dakota School of Medicine, along with six other groups throughout the world is researching the structure of certain lipids or fats. One of these gentlemen, Dr. Norman Shaw of the Laboratory of Microbial Chemistry at the University of New Castle Upon Tyne, England, recently visited Dr. Smith. During his stay, Dr. Shaw conferred and served as consultant to those of the Department of Microbiology at the Medical School.

Their work presently deals with determining the molecular structure of a new class of lipids called phosphoglycolipids. This class was first found in 1963 at the USD School of Medicine in an organism called **Acholeplasma laidlaivii.** This organism was first isolated from sewage in London in the 1930's, but is common everywhere now. Since then it has been found in bacteria in small amounts. Dr. Smith said, "Although no one knows the importance of these lipids, they are suspected to be involved in anchoring the cell wall of bacteria to the cytoplasmic membrane."

UNIVERSITY OF WISCONSIN TO HOLD 10th CANCER CHEMOTHERAPY CONFERENCE

The Division of Clinical Oncology of the University of Wisconsin will hold its 10th Cancer Chemotherapy Conference September 6-8, 1972, at the Park Motor Inn, Madison.

The conference is open to all United States physicians interested in cancer chemotherapy. It will review and present a forward look at anti-cancer therapy of solid tumors and leukemias as well as the role of radiotherapy, immunology and virology in the treatment of cancer.

The guest faculty will include: J. Palmer Saunders, Ph.D., director of Extramural Activities, National Cancer Institute, Bethesda, Md.; Loren J. Humphrey, M.D., Professor and Chairman of Surgery, the University of Kansas Medical Center, Kansas City; Emil J. Freireich, M.D., Professor of Medicine and Chief of Research Hematology, M.D. Anderson Hospital and Tumor Institute at the University of Texas in Houston; and faculty from the McArdle Laboratory for Cancer Research and the Division of Clinical Oncology at the University of Wisconsin-Madison.

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Pre-Sate (chlorphentermine hydrochloride) is indicated in exogenous obesity, as a short term (i.e. several weeks) adjunct in a regimen of weight reduction based upon caloric restriction.

Contraindications
Glaucoma, hyperthyroidism, pheochromocytoma, hypersensitivity to sympathomimetic amines, and agitated states. Pre-Sate (chlorphentermine hydrochloride) is also contraindicated in patients with a history of drug abuse or symptomatic cardiovascular disease of the following types: advanced arteriosclerosis, severe coronary artery disease, moderate to severe hypertension, or cardiac conduction abnormalities with danger of arrhythmias. The drug is also contraindicated during or within 14 days following administration of monamine oxidase inhibitors, since hypertensive crises may result.

Warnings
When weight loss is unsatisfactory the recommended dosage should not be increased in an attempt to obtain increased anorexigenic effect; discontinue the drug. Tolerance to the anorectic effect may develop. Drowsiness or stimulation may occur and may impair ability to engage in potentially hazardous activities such as operating machinery, driving a motor vehicle, or performing tasks requiring precision work or critical judgment. Therefore, such patients should be cautioned accordingly. Caution must be exercised if Pre-Sate (chlorphentermine hydrochloride) is used concomitantly with other central nervous system stimulants. There have been reports of pulmonary hypertension in patients who received related drugs.
Drug Dependence Drugs of this type have a potential for abuse. Patients have been known to increase the intake of drugs of this type to many times the dosages recommended. In long-term controlled studies with the high dosages of Pre-Sate, abrupt cessation did not result in symptoms of withdrawal.
Usage In Pregnancy The safety of Pre-Sate (chlorphentermine hydrochloride) in human pregnancy has not yet been clearly established. The use of anorectic agents by women who are or who may become pregnant, and especially those in the first trimester of pregnancy, requires that the potential benefit be weighed against the possible hazard to mother and child. Use of the drug during lactation is not recommended. Mammalian reproductive and teratogenic studies with high multiples of the human dose have been negative.
Usage In Children Not recommended for use in children under 12 years of age.

Precautions
In patients with diabetes mellitus there may be alteration of insulin requirements due to dietary restrictions and weight loss. Pre-Sate (chlorphentermine hydrochloride) should be used with caution when obesity complicates the management of patients with mild to moderate cardiovascular disease or diabetes mellitus, and only when dietary restriction alone has been unsuccessful in achieving desired weight reduction. In prescribing this drug for obese patients in whom it is undesirable to introduce CNS stimulation or pressor effect, the physician should be alert to the individual who may be overly sensitive to this drug. Psychologic disturbances have been reported in patients who concomitantly receive an anorectic agent and a restrictive dietary regimen.

Adverse Reactions
Central Nervous System: When CNS side effects occur, they are most often manifested as drowsiness or sedation or overstimulation and restlessness. Insomnia, dizziness, headache, euphoria, dysphoria, and tremor may also occur. Psychotic episodes, although rare, have been noted even at recommended doses. **Cardiovascular:** tachycardia, palpitation, elevation of blood pressure. **Gastrointestinal:** nausea and vomiting, diarrhea, unpleasant taste, constipation. **Endocrine:** changes in libido, impotence. **Autonomic:** dryness of mouth, sweating, mydriasis. **Allergic:** urticaria. **Genitourinary:** diuresis and, rarely, difficulty in initiating micturition. **Others:** Paresthesias, sural spasms.

Dosage and Administration
The recommended adult daily dose of Pre-Sate (chlorphentermine hydrochloride) is one tablet (equivalent to 65 mg chlorphentermine base) taken after the first meal of the day. Use in children under 12 not recommended.

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Manifestations: Restlessness, confusion, assaultiveness, hallucinations, panic states, and hyperpyrexia may be manifestations of acute intoxication with anorectic agents. Fatigue and depression usually follow the central stimulation. Cardiovascular effects include arrhythmias, hypertension, or hypotension and circulatory collapse. Gastrointestinal symptoms include nausea, vomiting, diarrhea, and abdominal cramps. Fatal poisoning usually terminates in convulsions and coma.
Management: Management of acute intoxication with sympathomimetic amines is largely symptomatic and supportive and often includes sedation with a barbiturate. If hypertension is marked, the use of a nitrate or rapidly acting alpha-receptor blocking agent should be considered. Experience with hemodialysis or peritoneal dialysis is inadequate to permit recommendations in this regard.

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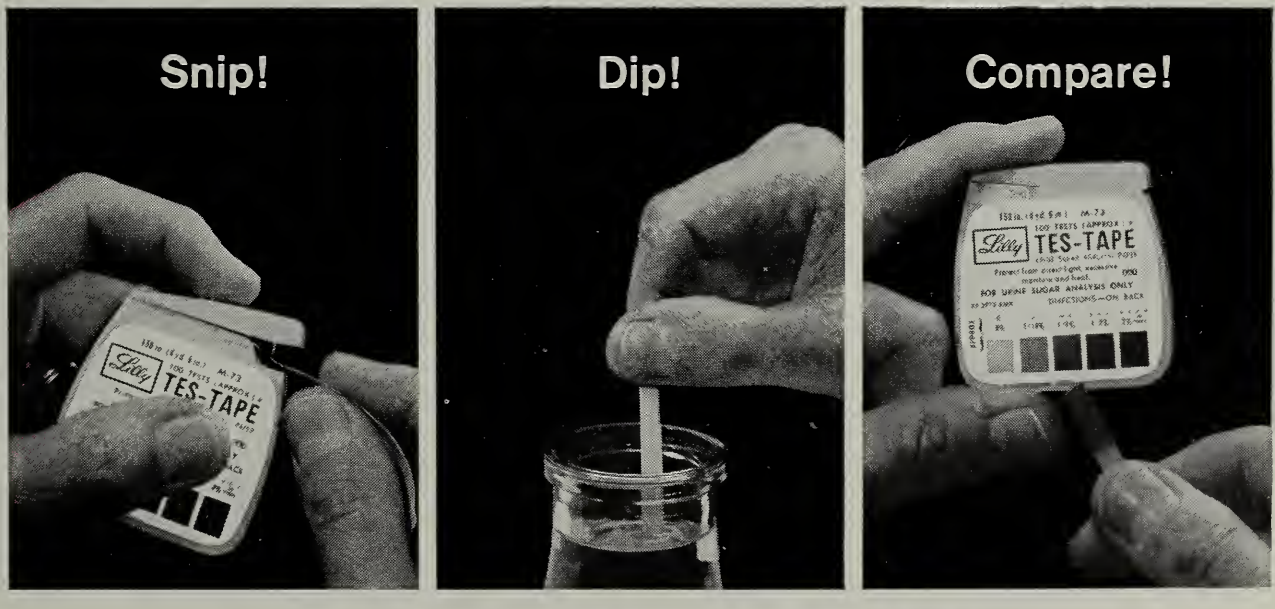

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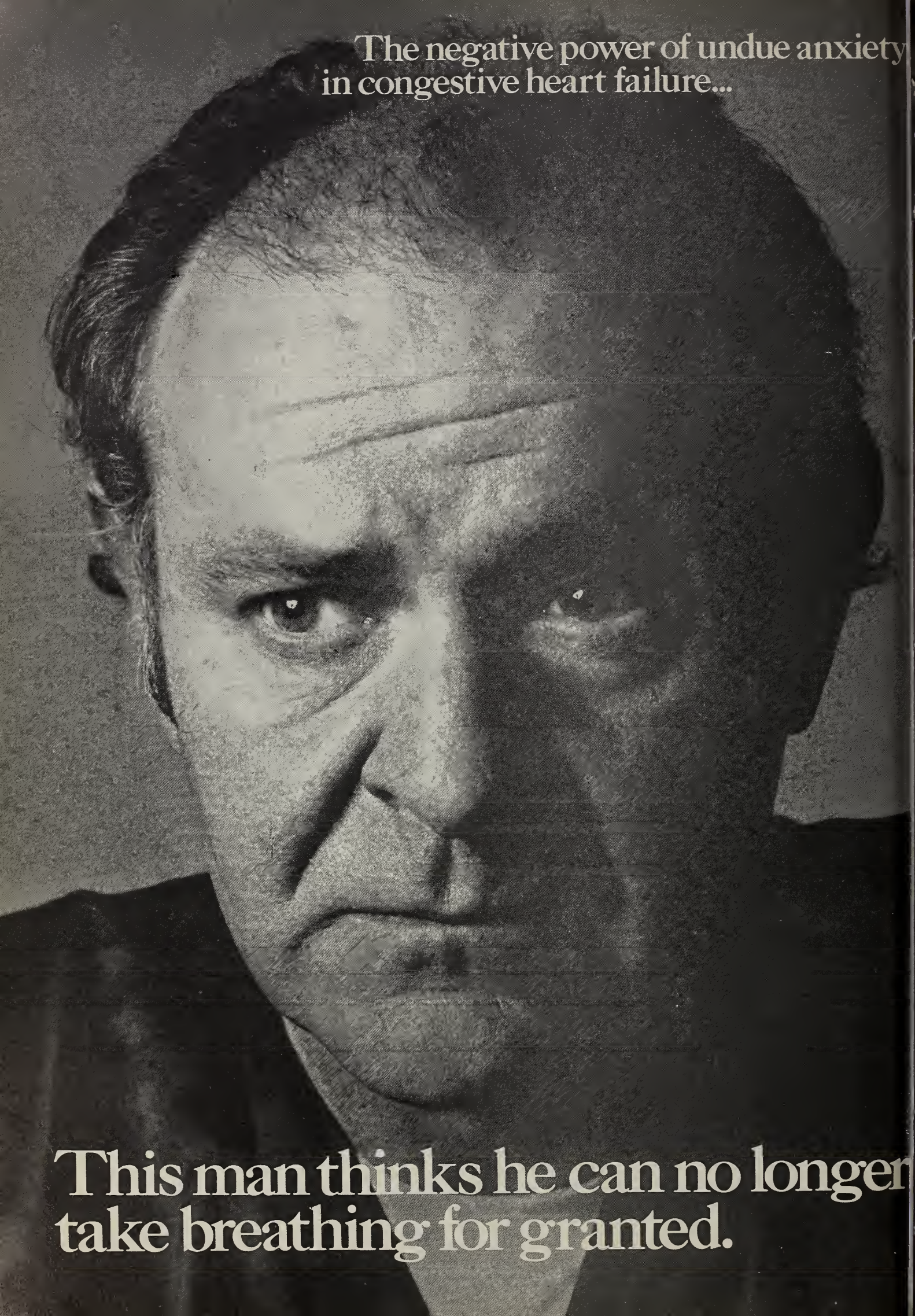
The negative power of undue anxiety
in congestive heart failure...
This man thinks he can no longer
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Typical of many patients with congestive heart failure, he also suffers from severe anxiety, a psychic factor that may influence the character and degree of his symptoms, such as dyspnea. His apprehension may also deprive him of the emotional calm so important in maintenance therapy.

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Specific medical and environmental measures are often enhanced by the antianxiety action of adjunctive Libritabs (chlordiazepoxide). Libritabs can also facilitate treatment of the tense convalescent patient until antianxiety therapy is no longer required. Whereas in geriatrics the *usual daily dosage* is 5 mg two to four times daily, the *initial dosage* in elderly and debilitated patients should be limited to 10 mg or less per day, adjusting as needed and tolerated.

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Libritabs is used concomitantly with certain specific medications of other classes of drugs, such as cardiac glycosides, diuretics, antihypertensives, vasodilators and oral anticoagulants, whenever excessive anxiety or emotional tension adversely affects the clinical condition or response to therapy. Although clinical studies have not established a cause and effect relationship, physicians should be aware that variable effects on blood coagulation have been reported very rarely in patients receiving oral anticoagulants and chlordiazepoxide HCl.

Before prescribing, please consult complete product information, a summary of which follows:

Indications: Indicated when anxiety, tension and apprehension are significant components of the clinical profile.

Contraindications: Patients with known hypersensitivity to the drug.

Warnings: Caution patients about possible combined effects with alcohol and other CNS depressants. As with all CNS-acting drugs, caution patients against hazardous occupations requiring complete mental alertness (*e.g.*, operating machinery, driving). Though physical and psychological dependence have rarely been reported on recommended doses, use caution in administering to addiction-prone individuals or those who might increase dosage; withdrawal symptoms (including convulsions), following discontinuation of the drug and similar to those seen with barbiturates, have been reported. Use of any drug in pregnancy, lactation, or in women of childbearing age requires that its potential benefits be weighed against its possible hazards.

Precautions: In the elderly and debilitated, and in children over six, limit to smallest effective dosage (initially 10 mg or less per day) to preclude ataxia or oversedation, increasing gradually as needed and tolerated. Not recommended in children under six. Though generally not recommended, if combination therapy with other psychotropics seems indicated, carefully consider individual pharmacologic effects, particularly in use of potentiating drugs such as MAO inhibitors and phenothiazines. Observe usual precautions in presence of impaired renal or hepatic function. Paradoxical reactions (*e.g.*, excitement, stimulation and acute rage) have been reported in psychiatric patients and hyperactive aggressive children. Employ usual precautions in treatment of anxiety states with evidence of impending depression; suicidal tendencies may be present and protective measures necessary. Variable effects on blood coagulation have been reported very rarely in patients receiving the drug and oral anticoagulants; causal relationship has not been established clinically.

Adverse Reactions: Drowsiness, ataxia and confusion may occur, especially in the elderly and debilitated. These are reversible in most instances by proper dosage adjustment, but are also occasionally observed at the lower dosage ranges. In a few instances syncope has been reported. Also encountered are isolated instances of skin eruptions, edema, minor menstrual irregularities, nausea and constipation, extrapyramidal symptoms, increased and decreased libido—all infrequent and generally controlled with dosage reduction; changes in EEG patterns (low-voltage fast activity) may appear during and after treatment; blood dyscrasias (including agranulocytosis), jaundice and hepatic dysfunction have been reported occasionally, making periodic blood counts and liver function tests advisable during protracted therapy.

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Robert H. Hayes, M.D.
STATE HEALTH OFFICER

Dear Doctor:

The following material is compiled for your study. I hope that it will begin to explain what we are doing.

Divisions of the Health Department are listed with the responsible Divisions Chiefs. In addition, principal programs and program directors are included. Excluded are many capable and responsible people whose pictures you will not see. We should have liked to put them all in the appropriate sections but space does not permit.

It is a great pleasure to be allowed to present this material to you in your journal.

Fraternally,

Robert H. Hayes, M.D.

STATE HEALTH OFFICER

Richard W. Blair
Executive Officer

HISTORY OF THE SOUTH DAKOTA STATE DEPARTMENT OF HEALTH

The South Dakota State Board of Health was created by legislative act of 1891 and consisted of three physicians appointed by the Governor. The original members of the Board were Doctors C. B. Alford, W. C. Fowler, and D. W. Robinson. Dr. Alford was designated by the Governor as the first Superintendent of Health and he was also elected by the Board as its first President. The position of Superintendent of Health and President of the Board was an honor extended successively to each of the three original members. The sum of $1000 annually was appropriated by the legislature for maintenance of the Board and this was decreased two years later to $500.00.

The first meeting of the State Board of Health was held in Aberdeen on July 9, 1891, and at this time county boards of health were organized, each board consisting of two physicians, one of whom was designated as Superintendent, and the States Attorney who was ex-officio president of the board.

In 1893, the State Board of Health was designated as a board of examiners for the purpose of licensing physicians desiring to practice medicine and surgery in the State. Most of the time of the Board in the earlier years of its existence was apparently given to this activity. There were many instances of investigation of practitioners who were practicing without license or who had received a license on the basis of fraudulent credentials. Written examinations for licensure were not required and a license was issued upon presentation of a diploma from a medical college indicating that four courses of study of not less than six months each had been successfully completed. There being no provision made for the accrediting of medical colleges, it can readily be seen why "diploma mills" did such a flourishing business.

In 1903 legislation was passed clarifying and extending the powers and duties of the State Board of Health. Provision was made for a five member board. In 1904, a need was expressed for the collection and recording of vital statistics and in 1905 a state agency for this purpose was set up in the office of the State Historian. In 1920, the Bureau of Vital Statistics was transferred to the State Board of Health where it has since remained. Interest in laboratory work as an adjunct to communicable disease control was first noted in 1909.

In 1913 provision was made for the office of a full time Superintendent of the State Board of Health. P. G. Jenkins, M.D., was appointed to this office, a position which he held almost continuously for a period of twenty-five years until December, 1938. Succeeding Dr. Jenkins as full time Superintendents have been the following:

J. F. D. Cook, M.D., December 1938 to February 1943

Gilbert Cottam, M.D., May 1943 to July 1948

G. J. Van Heuvelen, M.D., July 1948 to July 1970

Robert H. Hayes, M.D., July 1970 to present

Dr. Jenkins established the office of the Board in Waubay and it remained there until 1933 when it was moved to Pierre, its present location.

The original State Board of Health had two functions, medical licensure and communicable disease control. Other activities and new programs have been added from time to time.

In 1947 recognition was given to the fact that the old Board of Health organization was no longer in keeping with the actual administration of public health programs in the state. By legislative act, a State Department of Health was created. Replacing the old Board of five physicians is a Public Health Advisory Council of nine members representing not only the medical field but the other professions interested in health. Currently the organization is as follows:

CHAPTER 34—SOUTH DAKOTA
COMPILED LAWS 1967

34-1-1. Department created—Composition.—The state department of health as created in this chapter, shall consist of the public health advisory committee, a state health officer, directors of divisions, and such other employees necessary to the operation of the department.

34-1-2. Public health advisory committee established — Composition and appointments — Qualifications of members—The public health advisory committee, hereinafter referred to as the committee, is hereby established. The committee shall be appointed by the Governor and shall consist of eight members in addition to the state health officer who shall be an ex officio voting member thereof. One member shall be a physician licensed to practice medicine, one shall be an osteopath licensed to practice osteopathy, one shall be a chiropractor licensed to practice chiropractic, one shall be a veterinarian licensed to practice veterinary medicine, one shall be a dentist licensed to practice dentistry, one shall be an administrator of a duly licensed hospital, one shall be a registered nurse licensed to practice nursing and one shall be a registered pharmacist licensed to practice pharmacy in South Dakota.

34-1-3. Terms of office of advisory committee members.—The term of office of each member of the public health advisory committee shall be four years and the terms shall be arranged so that not more than two shall expire on the first day of July of any year. A person appointed to fill a vacancy arising before the expiration of a term shall be appointed for the remainder of such term only. No member shall serve more than two consecutive terms.

It is interesting to note that in 1900 the official state health agency consisted of three physicians who met occasionally as conditions seemed to indicate. The property owned by the Board consisted of a letter press, a seal, and a small assortment of record books and blanks. The annual budget was $750. This is in contrast with the State Department of Health in 1972 which employs 206 full time personnel, 157 in professional and 58 in clerical positions, owns equipment valued at approximately $311,770, and operates on an annual budget of $3,248,000 of which $1,220,997 is appropriated by the State and $2,027,003 represents grants from Federal health agencies and funds made available by counties for local health services.

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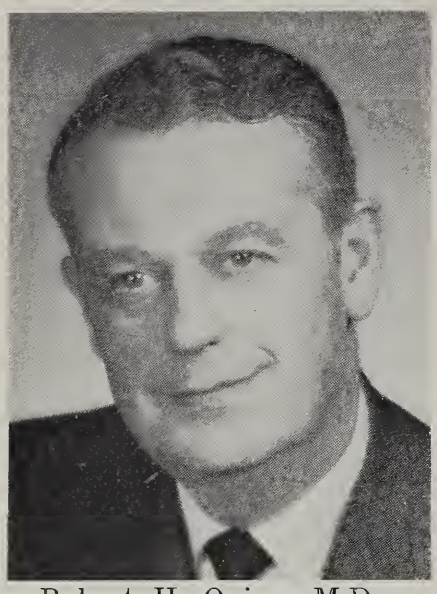

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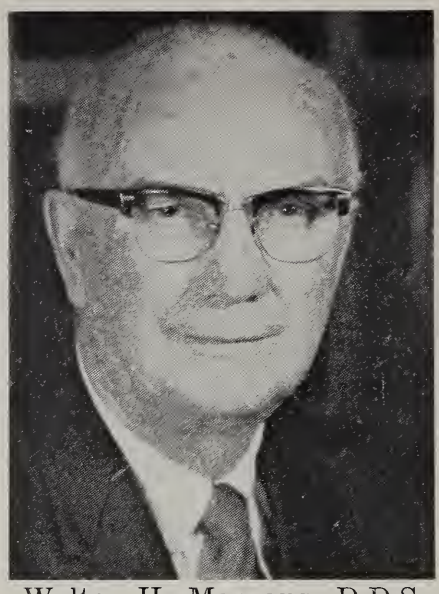

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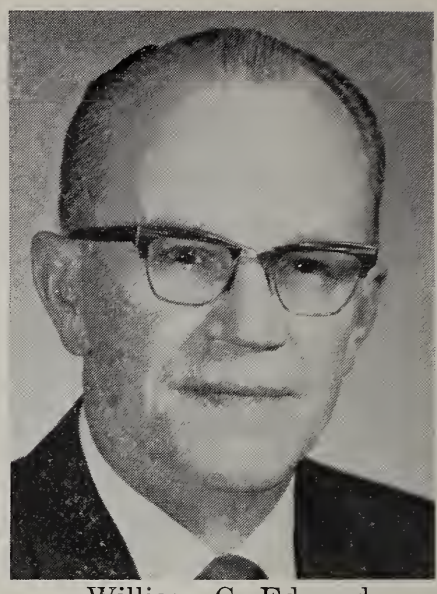

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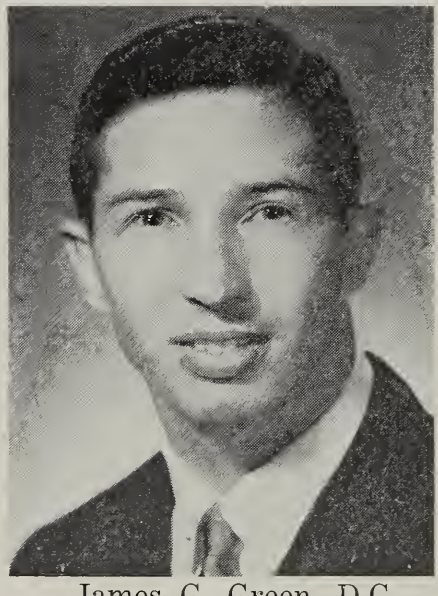

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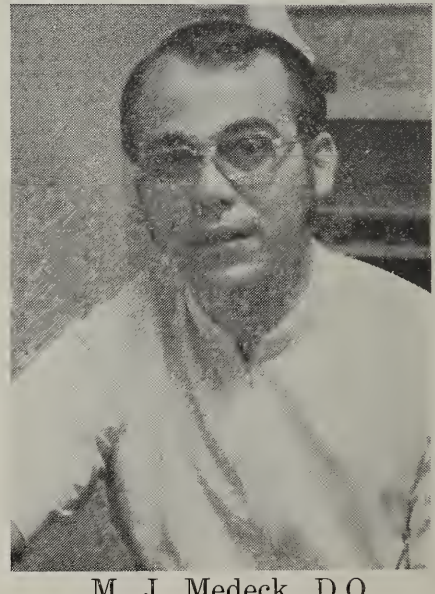

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CRIPPLED CHILDREN'S SERVICES

On July 1, 1925 a $4,000.00 appropriation for the treatment of indigent crippled children became available to the Health Department. Orthopedic specialists did their work without charge, the state paying for hospitalization and materials used. July 1, 1936 Federal funds became available under Title V of the Social Security Act. The availability of these funds allowed a considerable expansion in services to crippled children. The Program has developed to a point where during the fiscal year ending June 30, 1971, a total of 2,371 children received services. Of this number:

1,460 children received 1,824 clinic services
209 children received 2,491 days of hospital care
14 children received 1,765 days of convalescent care
1,021 children received 2,876 other services (office visits, etc.)

A total of $405,637.00 was expended.

Physicians' services are paid on the basis of the 1965 Relative Value Scale adopted by the South Dakota State Medical Association. The Unit Value of $4.00 was arrived at after consultation with the Council of that Association. The Department is being urged to raise the $4.00 unit value to $5.00. All Federal funds available for the Program are matched at present by State Funds. It would appear, therefore, that any additional monies would need come from an increased State appropriation. If increased funds are not available, a decision will need to be made as to whether to increase the patient load or services provided and increase the unit charge or to continue to pay the current $4.00. This decision would be reached by consultation with the Council of the State Medical Association and the Health Department Advisory Committee.

The legal basis for operation is provided for in Section 27.0104 (8) of the South Dakota Code which designates the State Department of Health as the official State agency for the administration of Title V of the Social Security Act.

Physicians who treat patients must be certified by the appropriate American Board in the specialty practiced or have the equivalent in training in the specialty to that required by said Board.

Payment for the physician's services is made in accordance with the physician's ordinary and usual charges but not to exceed $4.00 per unit value. Any insurance benefits should be paid directly to the physician and that amount shown as a deduction on their statement submitted to this office with the balance to be paid by this Department. We should be billed on a monthly basis for services rendered.

All services purchased shall be previously authorized and copies of the authorizations will be made a part of the patient's record. Services and appliances will be made available only to individuals who are receiving care in accordance with the standards and policies of this Program. Acceptance of an authorization carries with it an agreement that no charge will be made to or payment accepted from a patient or his family. All authorizations are made by program director or his authorized representative.

The State Department of Public Welfare administers Title XIX of the Social Security Act. Children eligible for assistance under this Title are served by the Department of Welfare to the extent possible. Costs for cases eligible under the Crippled Children's Program exceeding those permissable under Title XIX are paid by the Health Department with Crippled Children funds.

The long range goal of the Program is to

expand services in areas of disability not now covered in order that every child with a physical handicap may have the benefit of high quality medical treatment.

Eligibility for Services—The definition for a crippled child shall be as follows: "any child under 21 years of age whose physical function and movements are impaired by reason of certain congenital defects or deformities, or of bone, muscle or joint defect or deformity, or deformities produced by skin defects to the extent that such child is or may become totally or partially incapacitated for education, remunerative occupation, or self care." Defects which are cosmetic in nature and not physical handicaps will not be considered eligible. No child is denied care because of mental retardation. Assistance to patients with cystic fibrosis will be limited to the supplying of drugs prescribed for treatment.

Diagnostic Services — Crippled Children's services under this Program shall be made available to any child. Clinics are held annually in cities so located as to give statewide coverage. A clinic is held in each of the major Indian Reservations in order that this disadvantaged segment of the population may have easy access to services. During the interval between clinics children are referred directly to appropriate specialists.

A supply of applications for care is available upon request. When a case is accepted and referred to a physician, we send an authorization to him. We request that the physician providing the service send us a narrative report. This becomes an important part of our case history on the child.

The Health Department can not pay for custodial care or training nor for any expenses incurred in treatment of a case prior to having issued an authorization. In case of an emergency when there is not time to submit the application, verbal authorization for care for an eligible condition may be obtained by calling the Division of Crippled Children's Services. The regular written application should follow as soon as possible.

Heart Program — Heart conditions are not covered on our State's Crippled Children's Program. We act as the Agency for transmitting applications for cardiac conditions amenable to surgery to the Minnesota Regional Cardiac Center. This is a Federally funded Program and is administered by the Minnesota Crippled Children's Services. One of the requirements is that referrals must be made by the Crippled Children's Agency of the state in which the patient resides.

Special application forms are required for referral under this Program. Request for these forms should be made to the South Dakota Crippled Children's Services on an individual case basis.

Carmen H. Sutley, D.D.S.
Dental Consultant
Division of Dental Health

DIVISION OF DENTAL HEALTH

The Division of Dental Health was created by a special act of the legislature in 1945. It was placed under the direct supervision of the Public Health Advisory Committee. The law provides for the functions of the division to be conducted by a full time director of dental health.

The actual operation and the performance of the division has been in direct ratio to the authorized funding by the legislature during the intervening twenty-seven (27) years. There were five dental directors retained for the division during the first twelve years. Thereafter the division became a latent entity until the fall of 1965.

The dental division has been active in the promotion of several aspects of dental health since 1965. Perhaps the primary function at the beginning was to determine the dental problems in South Dakota and subsequently

present these problems to the South Dakota Dental Association for evaluation and possible suport in resolving them.

To meet the shortage of dentists in South Dakota a training compact arangement was authorized by the South Dakota legislature in 1970. This compact was subsequently implemented in two dental colleges, one in Nebraska and one in Illinois. The compact authorizes a maximum of 18 qualified South Dakota predental students to be admitted to these schools each year.

Prior to the above arrangement for predental students, several years were spent trying to encourage the legislature to authorize a school of dental hygiene. This was accomplished in 1967. The two year hygiene program has graduated its third class as of June 1972.

There is a dental assistants and technicians vocational school in the Watertown Independent School District. This program has proven very successful and proper credit is due the Watertown Dental Society and the local school board for this accomplishment.

In the preventive phase of dentistry, perhaps the most outstanding accomplishment and the one that will do the most good, was the passage of a bill by the legislature making it mandatory to fluoridate all community water supplies at an optimum level. Other preventive programs on a lesser scale involve tooth brushing instruction in some schools, literature and displays at the State Fair and literature to teachers throughout the state. The division is working with the dental association, through the dental service corporation, to develop a prepaid dental insurance plan that is sponsored by the South Dakota Dental Association.

The Fy 1972-73 will be another eventful year in that the division has purchased a two chair mobile dental unit that will be taken into 4 counties that do not have a dentist. A one year study will be made to help determine guidelines for all South Dakota rural areas and the delivery of dental services.

The dental division is functioning now as a crossroads for many dental programs. It is being used as a coordinating center for dental association activities, dental board communications, legislative problems, Welfare Title XIX administration, prepaid dental insurance, etc. It is a focal point of dental activities throughout the state and no doubt will some day encourage the South Dakota Dental Association to establish a permanent headquarters in Pierre, South Dakota.

William D. Johnson
Director, Public Health Statistics

PUBLIC HEALTH STATISTICS

The duties and responsibilities of the Division of Public Health Statistics are twofold. First, by statutory authority we are charged with the administration of the vital registration program. Secondly, we are the statistical and data processing arm of the Health Department.

The vital registration program is the collection and preservation of records for all vital events occurring within the state of South Dakota. These vital events include birth, death, fetal death, marriage and divorce. The program was first started in 1905, when the legislature created the Bureau of Vital Statistics in the History Department with the state historian as the officer in charge. In 1920 the responsibility was transferred to the State Department of Health where it has developed into an orderly and efficient system. In 1971 we received and filed 12,106 birth records, 7,138 death records, 152 fetal death records, 11,363 marriage records and 1,407 divorce records. We issued 19,007 copies of vital records and corrected 1,787 records.

The basic vital registration laws in the state of South Dakota were enacted in 1920, and since that time only minor changes have oc-

curred. In 1971 the laws were completely reviewed by the Health Department and legislation conforming to national standards was presented to the legislature. This act was passed and will become effective July 1, 1972. Regulations supplementing this legislation are now being drafted and it is hoped that they will be adopted by the Health Advisory Committee as soon after July 1st as possible.

The statistical and data processing activities of the division are continually increasing. We routinely publish vital statistics data, and do special statistical reports upon request. We have been designated by the Governor to work with the Bureau of the Census to develop population estimates for use by all state agencies.

We have completely automated all vital statistics data, developed an automated communicable disease reporting system, and tuberculosis register. We have developed a fee accounting system which includes fees from vital statistics, water testing, and eating and lodging establishments licensing. We are presently establishing a reporting and data processing system for occupational injuries and health conditions.

Thomas B. Schultz
Director, Medical Facilities

DIVISION OF MEDICAL FACILITIES

The goal of the Division of Medical Facilities is to assist in providing safe and adequate care for the citizens of South Dakota who must utilize the services of inpatient medical care facilities.

To attain this goal, it is the philosophy of the Division to provide assistance in the form of consultation services and educational programs in the planning and operation phases, and to support modernization and construction of facilities through the administration of grant and loan funds.

One of the major programs administered by the Division is the Hill-Burton Program which provides federal funds and subsidized interest loans to construct and/or modernize hospitals, long term care facilities, out-patient facilities, public health centers, rehabilitation facilities, and schools for nursing.

During the 25 years that this program has been in existence, $22,535,535 has been made available in the form of grants for 93 projects in South Dakota. In the administration of these funds, it is a requirement that a state plan be established and reviewed annually. This plan maintains an on-going inventory of all facilities and projects the need for additional construction and modernization. It also establishes a priority system for the awarding of grants. There is a ten member Advisory Council appointed by the Governor to assist the state agency in the administration of this program. By federal law, five members of this group must be consumers. Roscoe Dean, M.D., of Wessington Springs represents the medical profession on the Council.

The Division has been responsible for the licensure program for hospitals and nursing homes since 1947. In 1954 the responsibility was broadened to include homes for the aged. In 1966 the Health Department entered into a contract with the Social Security Administration to conduct surveys to determine that all providers for the Medicare program meet the requirements established by the Social Security Administration, and to give consultation services to facilities to assist them in meeting such requirements. In 1971 the Health Department entered into a similar contract with the State Department to provide similar surveillance and consultation to those facilities wishing to enter into contracts with the state welfare agency to provide services under the Title XIX (Medicaid) program.

South Dakota was a leader in integrating these programs into their licensure surveillance program in order to eliminate unnecessary duplication of surveys and conflicting recommendations which could result if there were multiple agencies involved. It should be

emphasized that in the Medicare and Medicaid certification programs, the state agency is required to use both standards and survey forms established by the federal agencies, and the state agency's activities are periodically reviewed by the federal agencies.

Under the above programs the state currently licenses 65 hospitals, 54 intensive care and nursing care homes, 68 intermediate care homes, and 43 supervised living facilities.

The different categories of homes vary in the types of patients which they are qualified to accept. The skilled nursing homes require around-the-clock professional nursing; the intermediate care facilities provide supervision by a professional nurse but do not provide around-the-clock nursing service; the supervised living facilities provide no professional nursing care.

The Division must conduct in-depth surveys of 43 non-Joint Commission hospitals for the Medicare program plus surveillance and consultation for utilization review for 64 hospitals. Also, there are ten extended care facilities, four private laboratories, and 22 home health agencies which must be periodically surveyed under the Medicare certification program. Currently there is a requirement under the Title XIX (Medicaid) program that the Division must conduct in-depth surveys of 56 skilled nursing homes at least twice a year.

In South Dakota the Health Department is responsible for the fire safety programs in all licensed facilities.

In addition to the major programs outlined above, the Federal Housing Administration and the Small Business Administration require a certificate of need from the Division of Medical Facilities before they will process any loans for the modernization or construction of such facilities.

The Division is responsible for the administration of federal construction funds available for mental health facilities, and are under contract with the Commission on Mental Health and Mental Retardation to provide architectural and engineering services for the construction program of mental retardation facilities under the Developmental Disabilities Act.

The Division devotes considerable time to research to provide information on planning, construction, and operation of medical type facilities, and in cooperation with other agencies, both governmental and non-governmental, conducts numerous training programs each year.

Helen B. Stover, R.N.
Director, Public Health Nursing

PUBLIC HEALTH NURSING

At the present time there are 36 out of the 64 counties with a public health nursing program. The goal is to establish public health nursing in all counties.

This is a generalized program which includes care and rehabilitation of the chronically ill; helping the geriatric persons to maintain maximum health and remain safely in their homes. In the near future greater emphasis will be placed on public health nursing programs for prenatals, postpartum, infant and preschool children. This includes immunizations, family planning, nutrition, early detection of physical and emotional problems with referral to the proper resource or consultation with another resource.

There will be an ongoing assessment and evaluation of the total program to determine the value of some of the public health nurses functions. Could some of these functions be better done by volunteers or community health aides so that the role of the nurse could be expanded into that of a nurse practitioner and/or physician's assistant?

This is truly an exciting time to be a Director of Public Health Nursing.

Ben E. Diamond
Program Director, Division of Laboratories

DIVISION OF HEALTH AND ECOLOGICAL LABORATORIES

Approximately a year ago the Division of Health and Ecological Laboratories made available to individual physicians, osteopaths, clinics, and hospital laboratories a "Guide to Laboratory Services." This approach was utilized to resolve many questions and problems which often arise in deciding the most suitable specimen to submit and the culture media or mailing outfit available for the transport of such specimens to the laboratory.

Certainly, the guide resolved many problems in bacteriology and serology. In the area of virology, further clarification appears to be necessary and will be attempted in this article.

There are more than 250 viruses responsible for diseases in man. For this reason there is no laboratory in the world that can undertake a request for "viral studies."

At the present time this laboratory can undertake only limited examinations in virology—namely serology of rubella and during outbreaks of influenza. The examination of animal heads for rabies is a routine procedure.

Some viruses can only be identified by serological tests, others by isolation only of the virus, and a few, additionally, by both isolation of the virus and serology.

For viruses with a respiratory symptomology, blood specimens are usually sufficient. Throat washings **must** be submitted on dry ice.

For symptoms of encephalitis, serological specimens only are indicated.

Where an aseptic or poliomyelitis is suspected, a stool specimen should always be sent. The viruses responsible for these syndromes are usually resistant and the stool specimen may be collected in any clear container, no preservatives present or added and not necessarily sterile—and sent to the laboratory by parcel post or first class mail.

Spinal fluids are of very limited value in the isolation of a causative virus but where the spinal tap has been made, then it should be included with the acute blood and stool. A short summary of the clinical symptoms must accompany any or all specimens. The convalescent specimen is taken 14 to 20 days later and the laboratory will request this if not received within this period.

There are no serological tests for the Coxsackie and Echo viruses and stool specimens only are indicated. Since there is a variety of clinical symptoms with these viruses and some of the symptoms may be similar to poliomyelitis a table giving such differences is included.

The Clinical Syndromes Associated with Infections by Enteroviruses

Polioviruses, types 1-3

1. Paralysis (complete to slight muscle weakness)
2. Aseptic meningitis
3. Undifferentiated febrile illness, particularly during the summer

Coxsackieviruses, group A, types 1-24

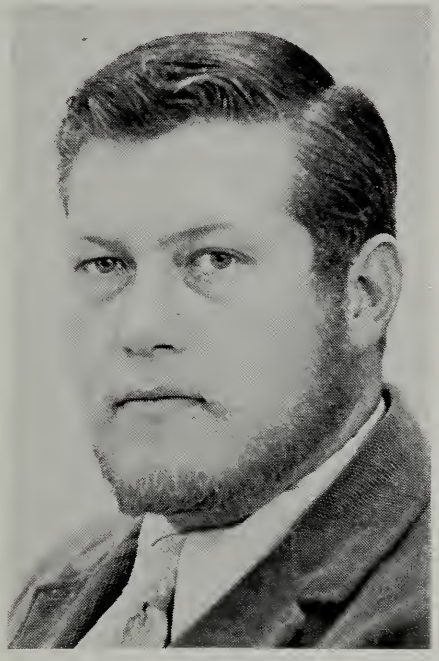
1. Herpangina (types 2, 3, 4, 5, 6, 8, 10)
2. Aseptic meningitis (types 2, 4, 7, 9, 10)
3. Paralysis (infrequently) (types 7, 9)
4. Exanthem (types 9, 16)
5. "Common cold" (types 21, 24)
6. Undifferentiated febrile illness (all types mentioned above, and others)

Coxsackieviruses, group B, types 1-6

1. Pleurodynia (types 1.5)
2. Aseptic meningitis (types 1-6)
3. Paralysis (infrequently) (types 2-5)
4. Severe systemic infection in infants, meningoencephalitis and myocarditis (types 1-5)
5. Pericarditis, myocarditis (types 1-5)
6. Upper respiratory illness and pneumonia (types 4, 5)
7. Undifferentiated febrile illness (types 1-6)

Echoviruses, types 1-32

1. Aseptic meningitis (types 2, 3, 4, 5, 6, 7, 9, 11, 14, 16, 18, 21, 30, 31)
2. Paralysis (mild) (types 2, 4, 6, 9, 11, 16)
3. Exanthem (types 4, 6, 9, 16, 18)
4. Respiratory disease (types 4, 8, 9, 11, 20, 25, 28)
5. Diarrhea (some types have been isolated, but a consistent role has not yet been established)



James Huy
Public Health Assignee
Division of Tuberculosis Control

TUBERCULOSIS CONTROL PROGRAM

The Tuberculosis Control Program has finished a very successful year with morbidity being reduced 31% over last year.

The principle means of control is vested through the three Tuberculosis Clinics, Public Health Nurses and contracted care provided by any private physicians in South Dakota.

Our program emphasis is being placed on effective out-patient care of active and inactive patients. If hospitalization is necessary, most general hospitals will take tuberculosis patients.

South Dakota was the first to close its Sanatorium in 1963 and started a national trend. Better care can be given to the patients through a trained private practitioner; we have sponsored along with TB-RD Association, a number of one and two day workshops for private physicians taught by personnel from the State and C.D.C., Atlanta, Georgia.

The whole scope of Tuberculosis Control has changed and we invite your participation in any of our courses.

We invite your inquiry or referral and requests for antigen, medication, consultation, free upon request at any of our clinics in Rapid City - Barbara Hoon, R.N. - telephone 394-2289; Watertown - Mildred Quinn, R.N. - telephone 886-8431; Sioux Falls - Ina England, R.N. - telephone 336-5645; Pierre Administration Office - Jim Huy - telephone 224-3357.

John W. Jones
Public Health Assignee
Division of Immunization Activities

VACCINATION ASSISTANCE PROGRAM

The Vaccination Assistance Program was originally funded in 1963. In its near ten years of existence, many changes have been noted. Our current project focuses primarily on the implementation of the Immunization Law which was passed by the South Dakota State Legislature in March, 1971. The first year brought to light many inadequacies in both the law and our procedures of carrying it out. However, with excellent cooperation from medical resources and the school systems, we have been able to work most of them out. One of the major problems encountered was the lack of time to prepare for implementation of the Law. In order to alleviate this problem, distribution of Certification of Immunization forms for the 1972-73 school term is presently being conducted. This will thus

allow parents an adequate length of time to get their child's immunizations up to date.

After reviewing those forms returned for the 1971-72 school year, an immunity status index was set up by county. A total of 9700 immunization forms for kindergarten-age children have currently been evaluated, and the statewide immunity index for that age group is as follows: DPT - 73.7%; Polio - 65.6%; Rubeola - 79.8% and Rubella - 61.9%. It was also noted that 89.4% of those children returning forms have had the tuberculin skin test in the preceding year.

The development of the immunity index was initiated to: (1) determine present immunity levels of the entering school population; (2) determine priorities, by disease, as to specific immunization problem areas; (3) provide information as to what percentage of children are not in compliance with the Law; and (4) encourage competition among school districts and counties in the State to raise their immunity levels. A marked increase in clinic activity and community interest has already been noted as a result of our findings.

Biologicals currently available from our office include DPT, DT, trivalent OPV, rubeola, rubella, and the combined rubeola/rubella vaccine. These vaccines are available, upon request, to private physicians, County Health Officers, Public Health Nurses, Indian Health Service personnel, school nurses, and community groups for clinic use.

Another recent change in our program has been alterations made to infant surveillance program. This involves the discontinuance of the distribution of the Birth/Health Identification cards. It should be noted, however, that the Birth/Health I. D. cards will be completed for parents until the supply of plastic cards is exhausted (approximately six months). The new surveillance program will involve the forwarding to all parents of children who are born in South Dakota an immunization profile which will include (1) a message explaining the importance of completing their child's basic immunizations in the first two years of life; (2) an immunization form for them to retain to record immunizations; (3) the recommended schedule for completion of basic immunizations; and (4) a message explaining the existence and content of the new Immunization Law for school enterers in South Dakota.

Another area covered by our division is the rubella antibody titer testing program. The rubella antibody titer testing program has been in existence since January, 1969. The HI titer tests are done, upon request, on premarital and prenatal females. The specimens submitted to the State Health Laboratory for April, 1972, numbered 800, which has been a rapid increase from the average of 300-350 specimens submitted during the final months of 1971. Increased emphasis is being made for physicians to routinely test young females, and additionally, to immunize all negative females postpartum.

If there should be any questions or comments on any of the areas covered by our program, please feel free to contact our office in Pierre.

Jerome H. Kern
Public Health Assignee
Division of Venereal Disease Control

COMMUNICABLE DISEASE DIVISION VENEREAL DISEASE CONTROL PROGRAM

Over the past ten years, the South Dakota as well as the National Venereal Disease Control programs have concentrated their efforts on the eradication of syphilis; primarily because syphilis is considered to be the most damaging of the venereal diseases and secondarily because adequate funding was not available for an all-out attack on gonorrhea.

Unfortunately, reported cases of gonorrhea continue to increase at a high rate. Nationally,

the number of cases reported annually has nearly doubled since 1965 and in 1970 reported cases increased 16 percent over the previous year.

In South Dakota we have seen a greater increase in reported cases of gonorrhea than the national average. Cases reported in 1970 increased 36% over the previous year; and in 1971 there was an additional 20 percent increase. During 1971 there were 1,639 cases of gonorrhea reported from 61 of our 67 counties.

Because of increasing concern over the growing venereal disease epidemic, additional federal funds are being made available to increase gonorrhea control activities.

Following are the major program elements recommended for a gonorrhea control program.

A. Culture screening of females for gonorrhea. Priority must be given to screening programs directed to detecting and treating women with asymptomatic gonorrhea. These screening activities should be limited to testing women who are already receiving pelvic examinations for other reasons. Screening activities should be as extensive as possible to provide baseline information on cost/yield results from screening activities.

B. Epidemiology

All reported male gonorrhea cases should be interviewed for their sex contacts. Priority should be given to male cases treated in public clinics. Contacts exposed during the period one month prior to diagnosis of the male will be referred to medical attention and appropriate epidemiologic treatment administered.

C. The establishment of statewide laboratory capabilities to process gonorrhea cultures is of highest priority. Methods for transporting culture specimens to laboratories are also essential.

D. Diagnostic/Treatment Services

1. The provision of free public clinic services which are readily accessible to the patient is encouraged. Available resources outside of the Health Department should be utilized fully in providing direct medical care to venereal disease patients.

2. The use of current recommended PHS treatment schedules for gonorrhea patients is essential. The provision of epidemiologic treatment to named contacts of male gonorrhea patients using PHS recommended schedules is strongly recommended.

E. Laboratory Reporting and Follow-Up

1. The passage or modification of laws or Health Department regulations to require timely reporting by laboratories of gonorrhea culture results is a priority undertaking.

2. Arrangement for immediate referral of persons with positive cultures to medical attention is required.

F. Education

1. Plans to provide an awareness of the problem and other venereal disease information to the general population. Such efforts should employ the extensive use of the mass media and volunteer groups. Plans should also be made to provide venereal disease education in schools beginning at junior high level.

2. Plans to enlist the participation of private physicians and medical institutions in specific control program activities are recommended.

The South Dakota Department of Health has an application in for additional money to increase gonorrhea control services. As soon as the money is released additional information will be supplied to all medical resources.

James F. Person
Program Supervisor
Emergency Health Services

EMERGENCY HEALTH SERVICES

The Emergency Health Services Section is involved in all phases of disaster that endanger your Health. This involves bandaging a minor laceration to preparing the people of South Dakota to deal with a nuclear attack. The program areas include stockpiling medical supplies, Hospital-Community Disaster preparation, State Disaster preparation, Medical Self-Help and Emergency Medical Services.

There are a number of Medical Supplies stockpiled in South Dakota that are to be used in case of a large natural disaster or a nuclear attack. There are eleven 200 bed Packaged Disaster Hospitals (PHD) and twelve Hospital Reserve Disaster Inventory (HRDI) supplies located in different areas of the State. The 200 bed Packaged Disaster Hospital is a functional hospital that can be set up in an auditorium or school and operated as an independent hospital for 30 days without re-supply or it can be used to support an existing hospital. The HRDI supplies consist chiefly of pharmaceuticals, surgical supplies and intravenous solutions which can be used to support a hospital. The HRDI does not have the hardware equipment to operate as an independent hospital.

The other programs that are promoted are Community-hospital Disaster Preparation and Medical Self-Help. The community-hospital disaster preparation is putting all available resources into use to see how well prepared a community is to face a disaster.

Medical Self-Help is a first aid course taught to the general public such as civic groups, interested individuals, and schools. This course was introduced in South Dakota in 1963. Since that time records indicate that over 80,000 people have completed this course.

The program that receives the most attention at the present time is the Emergency Medical Services program. This program involves the care a patient receives from the scene of an accident until he is delivered to the hospital Emergency Room. There are a number of deficiencies in the delivery and care of a patient that if corrected could save numerous lives. Before we discuss the deficiencies, I would like to present some statistics which will substantiate the fact that deaths caused by accidents are a problem.

In South Dakota accidents are the leading cause of death among persons between the ages of 1 to 44; and they are the fourth leading cause of deaths for all ages. Among accidental deaths, those due to motor vehicles, constitute the leading cause of deaths for all age groups. *According to the 1970 statistics the accident death toll was 477, including 247 from motor vehicles, 84 at home, 39 at work and 103 public deaths, of these 27 were water transport or drowning and 26 from falls. Deaths from accidents have increased annually. 16 more people were killed in 1970 than in 1960.

In 1966 the Department of Transportation was successful in receiving authority to try to cope with the growing number of deaths and injuries that occur on our highways. There are a number of preventative measures being taken to cut down the number of accidents and deaths but they cannot be completely eliminated. Funds are provided through the Highway Safety Emergency Medical Services standard for this purpose.

Emergency Health Services surveyed all ambulance services in the State to determine where improvements could be made. An Advisory Council was appointed by the Governor to help us determine where the most emphasis should be placed. A training course has been develop to teach both full time and volunteer groups proper care of accident victims. Matching funds have been provided to help com-

*Compiled by the South Dakota Public Health Statistics.

(Continued on Page 25)

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munities purchase new equipment and ambulances, this includes radio communications.

July 1, 1972 South Dakota has provided matching funds to 37 communities for the purchase of equipment and ambulances which have enough room to transfer and treat four adult stretcher patients. Aproximately 1,000 people have received training in Emergency Care and Transportation of the injured. This program will continue until better care can be given to every person who needs it. It is felt that with proper equipment and people trained to use this equipment, lives can be saved, and records will not have to show "D.O.A." on the report made out by the hospital.

Herbert Schumacher
Program Supervisor, Older Americans

THE OLDER AMERICANS PROGRAM IN SOUTH DAKOTA

The Older Americans Act of 1965 is a program of Federal assistance for the development of community programs in the field of aging.

By executive order of the Governor in 1967 the State Planning Agency was designated to administer programs funded through the Older Americans Act of 1965.

Since January, 1970 the Older Americans Program for South Dakota is administered from within the State Department of Health.

This program is to assist in the establishment of new or the development of existing programs to provide recreational, educational, health and informational activities for the elderly.

Some of the specific activities are: Home health aids, home maintenance services, counseling and referral services, Meals on Wheels, and Telephone Assurance Services.

Many of these services are provided by volunteer Senior Citizens, who also provide volunteer services to their community in many other ways. Most of these services originate within and are conducted from a Senior Citizens Center within a given community.

We have to date established 52 centers in 26 counties. Our goal is to have centers statewide in each county plus Indian reservations.

Nationally one in every ten Americans has reached or passed his 65th birthday. In South Dakota one in every eight persons has reached or passed his 65th birthday, or 12.1% of South Dakota's population is 65 years of age or older.

Senior Centers are places where older persons can come together for a variety of activities and programs. These range from just sitting and visiting or crafts, lunches, and transportation furnished for trips to doctors, shopping, church and other community activities.

We have 19 centers that are volunteering in the delivery of meals to people who are homebound or unable to cook for themselves. They are serving 290 meals a day or about 70,000 meals per year. The meals are prepared by hospitals, nursing homes and schools.

Congress has passed an Act to amend the Older Americans Act of 1965 to provide grants to states for the establishment, maintenance, operation and expansion of low cost meals projects, nutrition training, and education projects, opportunity for social contacts and other purposes.

South Dakota's share for fiscal 1973 is $500,000.00 and $750,000.00 for fiscal 1974. This program will be financed on a 90% federal matching and 10% local match.

The purpose of the Older American Program is to end isolation and to help the older persons to stay in their own homes, to make them feel useful, and to bring them into the action center of a community's life.

Douglas C. Sugrue, R.N.
Program Supervisor, Family Planning

SOUTH DAKOTA FAMILY PLANNING PROGRAM

Providing family planning and services for medically indigent women in South Dakota is the primary goal of the Family Planning Program office located in the State Department of Health in Pierre. Presently, there are approximately 20,000 women in South Dakota who fall within this category.

Family planning services have been operational in Rapid City since July 1969 when the Pennington County Health Department started a family planning clinic. The Brown County Health Department followed with a clinic in 1970. These two programs are funded by the Maternal Child Health Service.

The Office of Economic Opportunity, through its Community Action Agencies in Madison, Sisseton and Rapid City have also made services available in 9 counties utilizing private physicians on a fee-for-service type arrangement. The most recent addition to services is the family planning clinic which has been incorporated into the City Health Department in Sioux Falls. Family planning services across the State are presently serving between 1,500 and 2,000 participants. In order to reach the population of our more sparsely populated counties a project is underway which will provide additional services in thirty plus counties. These will be fee-for-service programs which will utilize the local private physicians and public health nurses to accomplish the necessary work. Outreach workers will also be utilized in five of our medium sized communities. Outreach workers and public health nurses will be providing family planning education as well as scheduling appointments wtih physicians for necessary examinations.

Family planning services will provide contraception, infertility counseling, sterilization and referral to other medical and social service agencies for problems not included in family planning services. Uterine cancer detection and venereal disease screening are also included as services available to family planning patients.

The national emphasis for these activities has stemmed from the President's Commission on Population Growth and the American Future. As a direct result the Department of Health, Education and Welfare created the National Center for Family Planning Services which is responsible for providing assistance through federal grants to establish family planning programs for education and services for medically indigent women.

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Environmental Sciences

DIVISION OF SANITARY ENGINEERING AND ENVIRONMENTAL PROTECTION

Although the Department of Health had its beginnings in 1912 with the State Board of Health, it was not until 1921 that the Division of Sanitary Engineering was established. At that time the primary responsibilities were in the fields of public water supply, wastewater (sewage) collection and disposal.

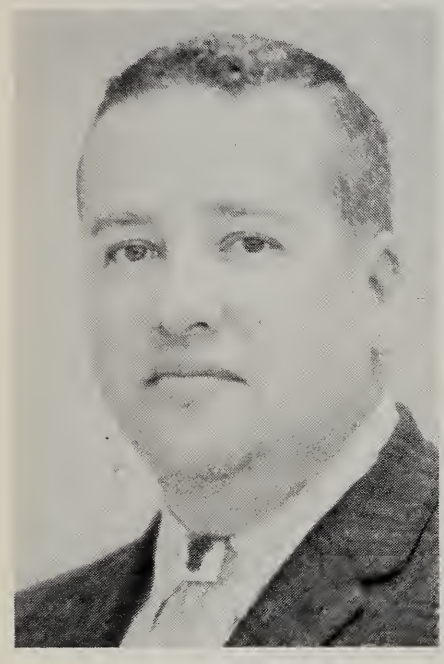
The 1935 water pollution statutes provided for a Committee on Water Pollution, originally constituted as a 3 member committee but now composed of three statutory members and four appointive members. The Committee receives no appropriations and has no budget. The administrative and technical work is conducted by the Division of Sanitary Engineering and Environmental Protection and since 1935, water pollution control has become a more prominent part of the activities of the Division.

Now, the Division, as evidenced by the broadening of the name in 1970 from Division of Sanitary Engineering to Division of Sanitary Engineering and Environmental Protection, is responsible for a number of environmental activities. The Division is presently broken down into six sections of activity: Water Pollution Control, Solid Waste, Water Hygiene, Consumer Services, Environmental Sciences Services, and Air Quality Control.

The Water Pollution Control Section is concerned with planning and water quality criteria, water pollution control facilities, surveillance and enforcement, research and development. The Solid Waste Section is fairly new and has been concerned with the development of satisfactory solid waste (garbage to most people) collection and disposal systems on a statewide basis. The Water Hygiene Section is concerned with drinking water supply, swimming pools and beaches, and plumbing. The Consumer Services Section has the programs of food service, lodging establishments, campgrounds, recreation facilities and Indian Health. The Environmental Services Section has been concerned with radiation protection, pesticides, vector control and occupational health. The latter program has now taken on added significance and will be placed on a section level to work with the United States Department of Labor in regard to provisions of the Williams-Steiger Occupational Safety and Health Act. Finally, the Air Quality Control Section is also comparatively new, with the primary responsibility of implementing recently adopted air pollution control regulations. The South Dakota Air Pollution Control Commission, as did the Committee on Water Pollution, designated the Division of Sanitary Engineering and Environmental Protection through the

Department of Health, as their technical agency.

In summary, the Division of Sanitary Engineering and Environmental Protection is delegated responsibility for environmental health activities of the Department of Health, with the Director of the Division directly responsible to the State Health Officer. The Director of the Division is presently administering activities with a staff of 23 professional people composed of engineers, scientists and sanitarians, assisted by 16 secretarial and clerical personnel. Staff vacancies exist, and due to other budgetary deficiencies the Federal Environmental Protection Agency has 5 assignees in the State assisting on the Water Pollution Control, Air Quality Control and Environmental Sciences Services programs, with the probability that additional help will be provided.



Frank Krogman
Program Supervisor
Environmental Sciences

ENVIRONMENTAL SCIENCES SERVICES PROGRAM

Morris Johnson
Public Health Assignee
Pesticides Program

Present activities are in the fields of radiation protection, pesticides control and vector control, with major emphasis being placed upon the radiation protection program due to budget and staff deficiencies.

Responsibility for the prevention of unnecessary human radiation exposure in South Dakota was delegated to the State Department of Health by the legislature in 1957 (Chapter 34-21, SDCL 1967). This law required the Department to develop a control program and contained an enabling section for the adoption of regulations for this purpose (Chapter 2, Section 2.14 of Regulations of the State Department of Health). The Department must also register and maintain records of radiation sources located within the State. The law was amended during the 1967 Session to permit development of an agreement with the Atomic Energy Commission for licensure of certain nuclear energy materials.

There are presently approximately 1300 radiation sources registered, consisting primarily of X-ray machines, approximately 960, but also including radium, radioactive byproducts, source, and special nuclear materials. The program is also concerned with radiation associated with consumer products and radiation accidents. The goal is to prevent unnecessary human radiation exposure from these sources in recognition that the health damage possible may include death, cancer, genetic mutations and life span reduction.

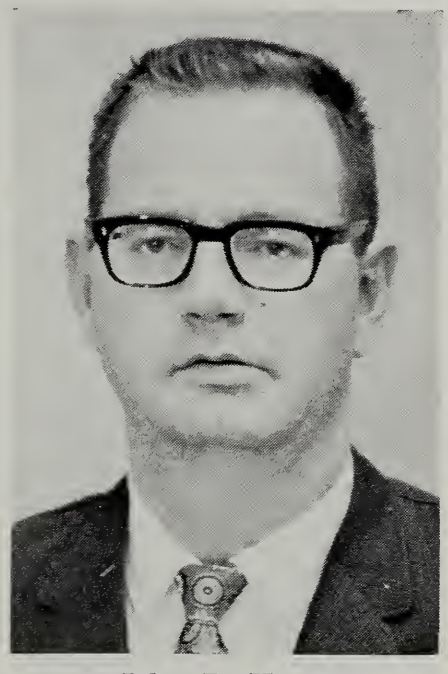
The basic concern of the pesticide section is the assessment of the total impact of pesticides upon human health and the development of programs to alleviate pesticide related health problems. This concern means defining the hazard presented to our population at present levels of usage, and developing systems by which potential hazardous areas can be defined.

Blaine B. Barker
Program Supervisor
Water Pollution Control

WATER POLLUTION CONTROL PROGRAM

The water pollution control program is concerned with the sanitary engineering aspects of design, construction, operation, and maintenance of wastewater collection systems and wastewater treatment facilities for domestic and industrial waste; design, construction, operation, and maintenance of water pollution facilities for livestock enterprises; with maintaining a five-year program plan to upgrade, maintain, and enhance the quality of water in all the surface waters of the State; with a surveillance program to determine compliance of all discharges with the State's Water Quality Standards; with the strengthening of the State Water Pollution Control Committee's legal authority to deal with confirmed and suspected pollutors; and with obtaining public support to correct existing problems and prevent new problems.

The largest pollution problem of the surface waters of South Dakota is siltation which relates to improper soil conservation practices; road, reservoir, and building construction activities; and natural runoff from virgin land. This problem will be substantially corrected by good conservation and construction practices. The next largest pollution source is from municipal wastewater; however, satisfactory progress is being made in development of adequate municipal treatment facilities. The third largest contributor is runoff from livestock feeding operations. This problem is receiving considerable attention with a recently passed regulation by the Water Pollution Control Committee. Industrial operations and the use of pesticides and herbicides are last in importance. Most industries either have their own treatment facilities or utilize municipal treatment facilities.



John P. Hatch
Program Supervisor
Water Hygiene Program

WATER HYGIENE PROGRAM

The primary goals of the Water Hygiene Program are:

1. Provision of safe, adequate, potable and desirable water throughout South Dakota.
2. Provision of safe, properly designed, constructed and maintained swimming facilities throughout South Dakota.

There are at present 278 community water supplies and 2 rural water district supplies, with 4 community supplies and 1 rural water district supply scheduled for construction.

Program activity with the above supplies include review and approval of plans and specifications for new or improved supplies, routine surveys of water supplies, training of operators at short courses, chemical and bacteriological water sampling and analyses, promotion of new water supply development and improvement of existing supplies, enforcement of State Law requiring water works operators to be certified in cities affected by law, and enforcement of

State Law requiring all cities above 500 population to deliver fluoridated water to the consumer.

After July 1, 1972, with all required cities adding fluoride, 391,000 people will be drinking water with fluoride of 0.9 mg./1 or above. Only 21,000 additional people served by community water supplies will not be drinking fluoridated water.

Other water supply activities are concerned with recreational areas, highway rest stops, State installation water supplies, semi-public water supplies and private water supplies. About 40% of samples received from farms, ranches, and rural homes are reported as unsafe.

Swimming facilities—there are 103 public pools and 14 educational and hospital facility pools. Program activities with swimming pools are similar to those for public water supplies.

OCCUPATIONAL SAFETY AND HEALTH PROGRAM

Raymond Shader
Program Supervisor, OSHA

Governor Kneip designated the State Department of Health as the agency to work with the U. S. Department of Labor in implementation of the Williams-Steiger Occupational Safety Health Act of 1970. Federal funds have been authorized on a 9:1 matching ratio with State funds to implement the program.

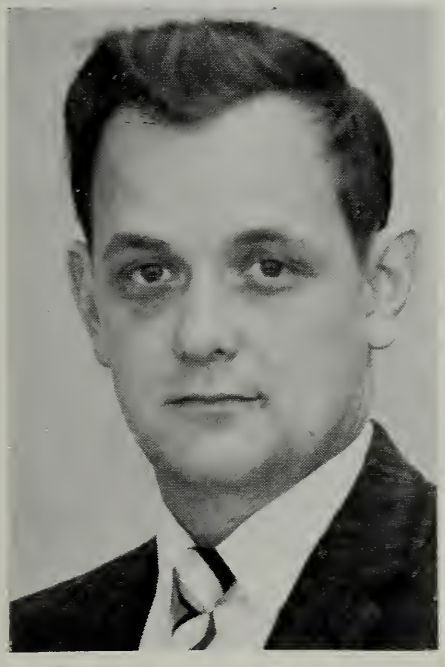
The program became operational, with R. A. Shader reporting on May 1 and assignment of two (2) of the four (4) other personnel shortly thereafter.

The program's primary objective will be, by full cooperation with the Legislative Research Council, the State Plan personnel of the Department of Labor, and any other interested group or citizen of the State, to arrive at a plan acceptable to the Department of Labor and to the State of South Dakota in the form of successful legislation.

Full use will be made of the information generated by a grant to the Vital Statistics group of the Health Department for obtaining data on accidents and sickness to employed persons. Problem areas and number information will be essential to support the plan and for use when the plan becomes operational.

Cooperation with Department of Labor compliance activities will increase as the State capability develops with acquisition of essential equipment. Independent State compliance activities will depend on the legislation enacted.

Howard E. Hutchings
Program Supervisor
Consumer Services Program



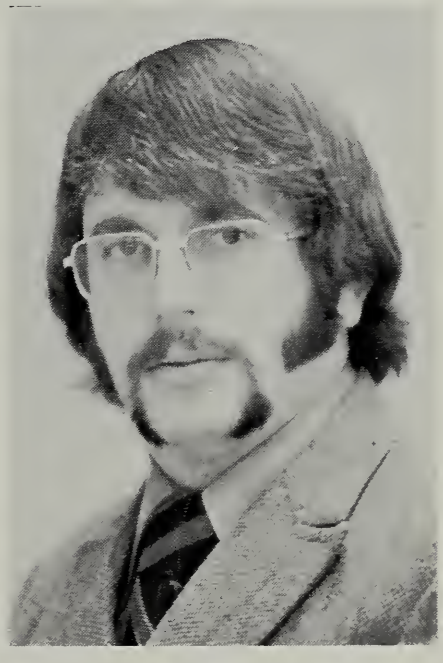
Richard L. McEntaffer
Program Specialist
Consumer Services Program

CONSUMER SERVICES PROGRAM

The primary responsibility of the Consumer Services Program is the administration of the inspection and licensing aspects of the food service, lodging, and campground establishments in South Dakota. Also included are investigations of local health or sanitation complaints, assistance to local city officials in health-related problems, and special surveys or investigations of water, water pollution and solid waste problems. Considerable work is done with the Indian Health program in cooperation with the Public Health Service, Division of Indian Health Service.

South Dakota has approximately 2200 restaurants, 850 motels or hotels and 120 commercial campgrounds. Regulations have been established for each of these industries with the primary focus being on items of public health importance. Nationally recommended codes have been followed wherever possible. Special problems inherent to South Dakota have been considered in establishing and carrying out the intent and purpose of all regulations.

A strong on-going and industry educational emphasis has been promoted. This includes talks at elementary, secondary and vocational schools, colleges and universities and before civic groups. News articles also are used to promote the need for health and sanitation awareness for the public.



Lyle Randen
Program Supervisor
Air Quality Control

AIR QUALITY CONTROL PROGRAM

The Federal Clean Air Act as amended in 1970 provided that minimum air pollution control standards be developed by the Federal Government and established assistance to State Government in implementation of these standards. The State Clean Air Act created a State Air Pollution Control Commission and

enabled the development of standards for emission and ambient air quality.

An Air Pollution Source Emissions Inventory was conducted by the Geophysical Corporation of America with the help of the State Air Quality Control Section. The final draft of the inventory was received from GCA on November 8, 1971.

Four hearings on proposed Air Pollution Control Regulations and the Implementation Plan were held around the State during the first full week of December. The Air Pollution Control Commission adopted the proposed regulations and plan on January 17, 1972. On January 27, 1972, the regulations and plan were sent to the Environmental Protection Agency for their review and approval. They have a four month period to complete this review and approve the regulations and plan. When approved, the regulations and plan will be filed with the Secretary of State and 20 days thereafter will have the effect of law.

The Environmental Protection Agency has assigned four people to the program due to a lack of program funding at the State level. Fiscal 1973 will terminate the development and establishment grant that the program is receiving from the Federal Government. This grant provided for 3 to 1 Federal matching money.

H. R. Tommervik
Program Director
Division of Finance & Accounts

DIVISION OF FINANCE AND ACCOUNTS

This is the financial hub around which the program wheel turns.

One of our principal duties relates to the receipt, allocation and record keeping concerned with state and federal funds allotted to the department. Our first concern in this area is the preparation of the budget for presentation to the legislature by the Governor. This is done in cooperation with the various program directors. The appropriation of state and allocation of federal funds then requires that we prepare and submit an operating budget which becomes our financial plan of operation. In this connection, we prepare and submit periodically to the program directors an expenditure report upon which they may project their operations in accordance with funds available. We also prepare and submit required requests for funds to federal agencies and make periodic reports to those agencies.

We are the departmental cashier. All funds received as fees coming to the department are received here, receipted for and proper accounting records are maintained. Fees are collected for copies of vital records, certain laboratory procedures, medical facilities licensure, hotel and restaurant licensure, septic tank pumpers' license and water and sewage plant operator certification.

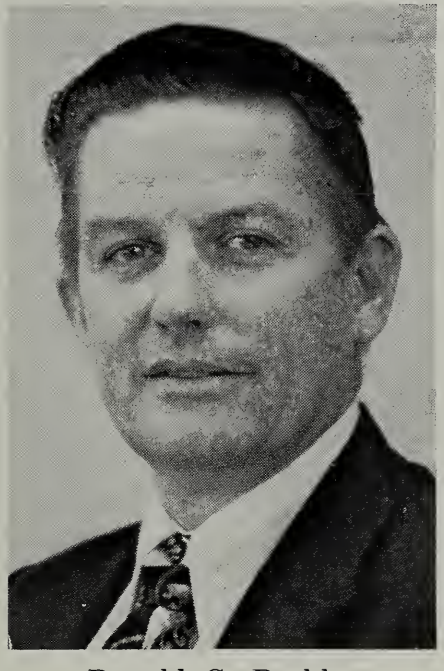
Personnel services are another activity of our office. As job openings occur, notices come to our office and requisitions are made to Merit System for list of eligibles. As vacancies are filled, personnel actions are initiated to place those hired on the payroll. All time and leave records are filed with the personnel officer.

Purchasing, inventory, and payment of obligations require the use of considerable time. Purchases of consumable supplies, available in central supply, are pooled here and forwarded to the supply room on a weekly basis. Requisitions for supplies and equipment required to be purchased on a competitive basis are also pooled here and forwarded to Purchasing and Printing in accordance with a schedule provided by them. Some supplies, medical, laboratory, and scientific, are exempt from the competitive bidding procedure and are purchased direct. In this case we issue the purchase order.

The law requires that annually each Department shall file with the Director of Administration an inventory of equipment held by that department. We have placed our inventory on the computer and each year receive a complete run of all equipment. This list is updated by the addition of recently purchased pieces and the deletion of obsolete, missing and destroyed pieces and program directors are required to accept responsibility for all equipment on the list as their interest may appear.

In summary, our workload consists of the preparation of 24 payrolls, 12 regular and 12 supplemental, well over 5000 vouchers for payment of expenses, 100 requisitions to Purchasing and Printing, 25,000 receipts for fees, several budgets, the request to the Governor for submission to the Legislature, the operating budget, and budgets to the various federal agencies. We are also required to provide expenditure reports to the Division and Program directors periodically. Our staff consists of the personnel officer, an accountant, 2 technicians, and one stenographer.

The most annoying problem faced over the years has been the prompt and efficient handling of fees. In the past this was handled by the divisions having direct contact with the public. This was troublesome. The present central cashier system will probably improve to an acceptable level when all persons concerned understand and appreciate the problems involved.



Donald G. Brekke
Coordinator, Health Manpower Development

CORE CURRICULUM

The general purpose of the Statewide Core Curriculum Project is to develop a Statewide Core Curriculum, Career Ladder, and Challenge System for all health manpower training programs in South Dakota, which will result in the orderly development of a basic statewide core curriculum for individuals entering the health field.

South Dakota decided that a sound beginning would be a core curriculum decided upon by a representative from each of the 60 health manpower training programs in the state. A concentrated amount of inspiring medical and scientific material will be presented to the student at the beginning of his "health career" —not at the end or in the middle as it is now. A common examination system is proposed as well to adequately insure that the different schools and programs can give credit for work done at any one of them at any time. Most important is the basic tenet that the schools and programs will decide upon the "core curriculum".

The Career Ladder will follow the development of the basic core curriculum. The core will be designed in such a fashion that the finishing of a certain number of blocks (or courses in the core curriculum) would result in the completion of the requirements for a particular health manpower training program. Each step up the ladder would serve to advance a student in his health career.

Once the Core Curriculum and Career Ladder are implemented the Challenge System will follow. The Challenge System would offer students the opportunity to challenge by examination and/or experience, any or all courses in the curriculum.

Credit must be given for competency already obtained and demonstrated. Many persons through one opportunity or another (often military experience or work as laboratory assistants or research assistants) have learned practice or theory or both about a skill area or profession. Today they typically receive no credit for competency in such an area, they are required to repeat work or waste time

doing busy work when they could have been examined, and if found satisfactory, moved on to other areas of study they still need. Testing in this area may in some cases be done through checking performance proficiency for one or many laboratory or patient care procedures or by use of regular examinations for theory depending on what the particular field requires.

It is planned that the Core Curriculum will be implemented in the Fall of 1973.

Earl F. Bihlmeyer
Director, Comprehensive Health Planning

COMPREHENSIVE HEALTH PLANNING

The Office of Comprehensive Health Planning was initiated in South Dakota late in 1967. The Office is a product of the 89th Federal Congress (P.L. 89-749) as signed into law November 3rd, 1966 by President Lyndon B. Johnson. This law established Comprehensive Health Planning to provide coordinated health planning efforts involving all levels of government, Federal, State and Local, as well as the general public, in an attempt to improve health and the adequacy and exceptability of health services while maintaining or improving quality and containing cost.

The ultimate purpose or goal of CHP is the development of an adequate, accessible, high quality health system that includes provision for reasonable assurance of continuity of care through the ongoing Comprehensive Health Planning process. The Comprehensive Health Planning process involves systematic and continuing activity in the following areas:

—Identifying health needs
—Inventorying health resources
—Developing alternative courses of action
—Establishing priorities and recommendations for action
—Promoting implementation of recommendations
—Evaluating results

Public Law 89-749 (as amended) and the corresponding administrative interpretations, indicate consideration of the following broad categories:

HEALTH SERVICES—
—preventive/control of disease
—promotion of all aspects of personal health services, including rehabilitation

HEALTH FACILITIES—
—promotion of cooperation among existing facilities for the provision of adequate equipment and resources to meet the needs of the public
—stimulation of needed development and remodeling and construction of health facilities to meet the needs of the State

HEALTH MANPOWER—
—stimulation of the improvement of existing manpower for more effective utilization
—promotion of innovative programs for recruiting, training and retraining health manpower
—promotion of awareness of existing available resources

ENVIRONMENTAL HEALTH—
—improvement of our physical, social and mental environment through programs which stimulate individual, community and statewide health

MENTAL HEALTH/MENTAL RETARDATION
—development and promulgation of principles of statewide Mental Health and Mental Retardation planning
—development in cooperation with the Commission on Mental Health/Mental Retardation, of programs for collecting, analyzing and disseminating Mental Health/Mental Retardation data and information
—encouragement and assistance toward the

adoption of sound proposals to meet the needs and demands of all communities in the State

Through Public Law 89-749, and its amendments, Congress has declared that one of our principle national goals is to promote and assure the highest level of health attainable for every person. Close inter-governmental cooperation, official and voluntary efforts, and participation by individuals, both provider and consumer, are essential ingredients. The State Office of Comprehensive Health Planning is available as a resource to communities which wish to establish local health planning councils whose purposes would include the above considerations. In addition to the development of the above stated considerations into a comprehensive State plan for health, the State Office is responsible for such administrative and or technical assistance responsibilities as assigned by the Governor or the Legislature.

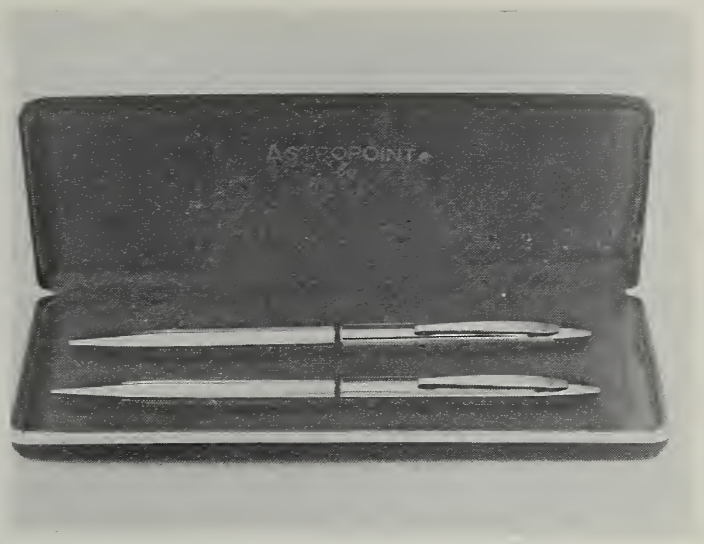
ANNUAL OTOLARYNGOLOGIC ASSEMBLY

October 14 through 20, 1972

The annual Otolaryngologic Assembly of 1972 will be held October 14 through 20, 1972, in the Eye and Ear Infirmary of the University of Illinois Hospital. The Department of Otolaryngology, Abraham Lincoln School of Medicine, University of Illinois at the Medical Center, offers a condensed basic and clinical program for practicing otolaryngolosists under the direction of Emanuel M. Skolnik, M.D. It is designed to bring specialists current information in medical and surgical otorhinolaryngology.

Interested otolaryngologists should direct their inquiries to the mailing address: OTO-Laryngology, P.O. Box 6998, Chicago, Illinois 60680.

A separate, but correlated course, "Conference on Radiology in Otolaryngology and Ophthalmology" will be held this year on Friday and Saturday, November 24 and 25, under the guidance of Galdino E. Valvassori, M.D. For further information about the radiology conference, write to Professor Valvassori, Radiology Department, Abraham Lincoln School of Medicine, P.O. Box 6998, Chicago, Illinois 60680.



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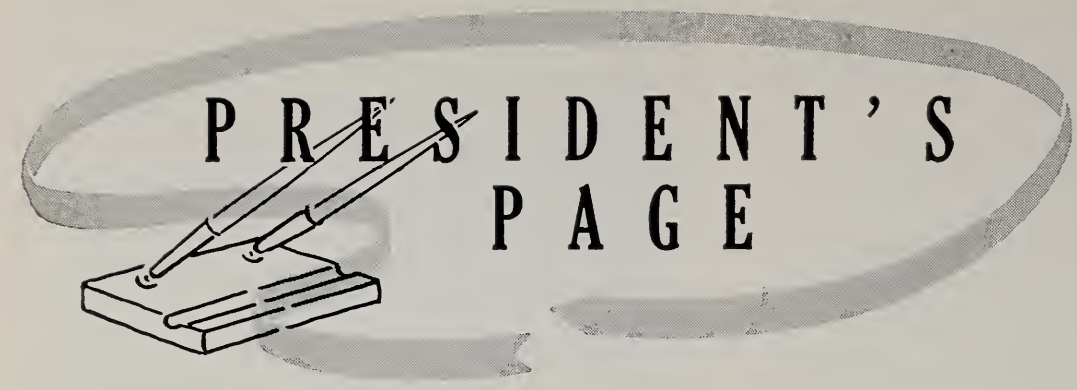

Perhaps the most pertinent discussion and most significant business transacted at the recent annual meeting related to medical education in the State of South Dakota. An informal symposium regarding medical education was held on the Thursday prior to the state meeting and an excellent discussion ensued. At the second House of Delegates meeting a resolution was passed specifically relating to medical education. I would ask that all members of the South Dakota State Medical Association be familiar with the content and intent of this resolution, and therefore am requesting that it be printed in this letter.

Resolution #1
TO: House of Delegates South Dakota State Medical Association
FROM: Second District Medical Society
SUBJECT: University of South Dakota Medical School

WHEREAS, the curriculum of medical education is undergoing rapid evolution and change and as a result of this the future of orderly transfer of two-year graduates of the University of South Dakota Medical School may be in jeopardy, and

WHEREAS, the recommendation of independent studies of medical education nationally and also specifically in South Dakota, i.e.; the Carnegie Report, the Hardin Report and the Governor's task force have recommended the implementation of a degree-granting program at the University of South Dakota Medical School, and

WHEREAS, the administrative department of the University Medical School have deemed the principal of establishing a degree-granting program feasible, practical and possible, and

WHEREAS, the House of Delegates of the South Dakota State Medical Association, the Commission on Medical Service and the Council of the South Dakota State Medical Association have adopted the recommendations of a degree-granting program at the University of South Dakota Medical School,

NOW THEREFORE BE IT RESOLVED BY THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION, that the President of the South Dakota State Medical Association delegate a committee or a commission to review the various approaches that have been presented regarding medical education and its problems in South Dakota, and arrive at the concise and definite recommendation which would embody the thoughts of the majority of the members of the medical profession in the State of South Dakota and would serve as a useful tool in the coordination of the efforts of the medical school administration and the Board of Regents, as such to be presented as a recommendation to the next legislative session, and

BE IT FURTHER RESOLVED, that this committee or commission, along with the Council of the South Dakota State Medical Association, be delegated the responsibility of making a firm decision for the medical profession in the State of South Dakota.

The Medical Education Study Committee has been appointed and consists of nine members representing various types of practice, various areas of the state, and varied opinions in regard to the direction medical education in South Dakota should take. B. C. Gerber, M.D. of Aberdeen is the chairman of the committee and other members include: B. J. Begley, M.D. Sioux Falls; C. F. Gryte, M.D., Huron; James Ryan, M.D., Mobridge; G. E. Tracy, M.D. and G. R. Bartron, M.D., Watertown; C. B. McVay, M.D., Yankton; R. J. Bareis, M.D., Rapid City; and the student representative is Judd Reaney, currently president of the Freshman class at the University of South Dakota School of Medicine.

The initial meeting of the committee was held in Pierre, South Dakota, on May 24, 1972, and six areas of activity were outlined: 1) Arrive at a reasonable conclusion as to the continued acceptance of South Dakota graduates from the two-year school; 2) Establish the availability of teaching physicians in South Dakota; 3) Study and evaluate the curriculum of both the three and four year medical schools; 4) Obtain and evaluate the specific concept of the "school without walls"; 5) Form an opinion or recommendation and disemminate the information to South Dakota physicians in an intensive education program; 6) Consider the vitality of a three-year program in terms of the purpose, financial aspects, and acceptance.

Meetings of the medical education study will be held monthly or more frequently if the need arises, and the members of the association will be kept fully informed as to the information obtained and the recommendations made by the committee.

W. R. Taylor, M.D.

This is your MEDICAL ASSOCIATION

The V. A. Center in Hot Springs has announced the appointment of Walter Meyers, M.D. to the staff. Dr. Meyers is a native of South Dakota but has been in private practice in Chicago prior to joining the V. A. Charles H. Scheifley, M.D. has been appointed to the staff of the V. A. Hospital in Sioux Falls. He specializes in internal medicine and has been in private practice in Park Ridge, Illinois since 1961.

* * * *

Dr. William E. Brennock, Assistant Professor of Physiology and Pharmacology at the University of South Dakota Medical School, is leaving the school to attend the University of Nebraska Medical Center and obtain his M.D. degree. He is primarily interested in the clinical investigation in endocrinology and plans to work in an academic institution after obtaining his degree.

* * * *

The Rosebud District Medical Society elected the following officers for the coming year: **K. K. Verma, M.D.,** Gregory, President; **E. P. Sweet, M.D.,** Burke, Vice President and **Robert Stiehl, M.D.,** Winner, Secretary.

The sixteenth annual state meeting of the American Association of Medical Assistants was held in Sioux Falls. **Milton Mutch, M.D.,** Sioux Falls, addressed the group and **John Donahoe, M.D., Sioux Falls,** participated in a panel discussion on the "Legalization of Marijuana."

* * * *

W. H. Saxton, M.D., founding member of the Huron Clinic, was honored at a dinner marking the fiftieth anniversary of the clinic.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

Those attending the eleventh annual Clinical Pathology Workshops held at the University of South Dakota Medical School heard guest speakers, Sam Frankel, Ph.D., Associate Director, Biochemist of Mediwest Medical Laboratories at St. Louis, and Roger Hamstra, M.D.,, Assistant Professor of Medicine, University of Colorado Medical Center, along with area physicians **John Barlow, M. D.; Loyd Wagner, M.D.,** and **Karl Wegner, M.D.,** all of Sioux Falls.

* * * *

Raymond G. Burnett, M.D., Rapid City, was the banquet speaker at the 1972 Licensed Practical Nurses' convention held in Spearfish.

* * * *

Stanley Fox, M.D., formerly of Pierre; **G. J. Bloemendaal, M.D.,** Ipswich; and **A. W. Spiry, M.D.,** Mobridge, were voted honorary memberships in the South Dakota State Medical Association at the Council meeting held during the annual meeting in Sioux Falls.

* * * *

Karl H. Wegner, M.D., addressed the June 10th meeting of the Sioux Empire Chapter of Medical Assistants. He conducted a tour of the Laboratory of Clinical Medicine, and briefly explained the equipment and its functions.

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OMAHA MID-WEST CLINICAL SOCIETY

40th Annual Postgraduate Assembly

October 30, 31 and November 1, 1972

Hilton Hotel, Omaha, Nebraska

John A. Haggstrom, M.D., Director of Clinics

ANNOUNCEMENT OF
POSTGRADUATE COURSE

CLINICAL GASTROENTEROLOGY — September 10-16, 1972; Castle Harbour Hotel, Bermuda. Vernon M. Smith, M.D., Director, 301 St. Paul Place, Baltimore, Md. 21202.

COURSE IN LARYNGOLOGY AND BRONCHOESOPHAGOLOGY

The Department of Otolaryngology of the Abraham Lincoln School of Medicine and the University of Illinois Hospital Eye and Ear In firmary, University of Illinois at the Medical Center, will conduct a continuing education course in Laryngology and Bronchoesophagology November 13 through 18, 1972. The course is limited to fifteen physicians and will be under the direction of Paul H. Holinger, M.D. It will be held largely at the Eye and Ear Infirmary, 1855 West Taylor Street, Chicago, and will include visits to a number of other Chicago hospitals. Instruction will be provided by means of animal demonstrations and practice in bronchosopy and esphagoscopy, diagnostic and surgical clinics, as well as didactic lectures.

Interested physicians will please write directly to the Department of Otolaryngology, University of Illinois at the Medical Center, Postoffice Box 6998, Chicago, Illinois 60680.

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In tubes of 15 g.

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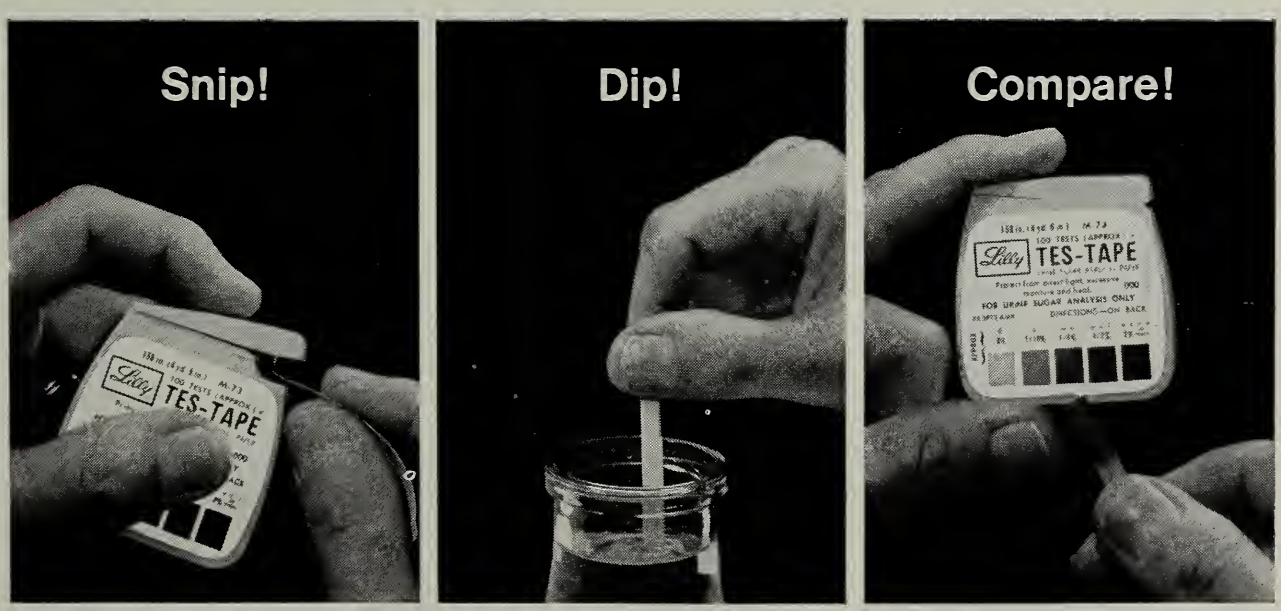

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Before deciding to make Valium (diazepam) part of your treatment plan, check on whether or not the patient is presently taking drugs and, if so, what his response has been. Along with the medical and social history, this information can help you determine initial dosage, the possibility of side effects and the ultimate prospects of success or failure.

While Valium can be a most helpful adjunct to your counseling, it should be prescribed only as long as excessive psychic tension persists and should be discontinued when you decide it has accomplished its therapeutic task. In general, when dosage guidelines are followed, Valium is well tolerated (see Dosage). For convenience it is available in 2-mg, 5-mg and 10-mg tablets.

Drowsiness, fatigue and ataxia have been the most commonly reported side effects.

Until response is determined, patients receiving Valium should be cautioned against engaging in hazardous occupations requiring complete mental alertness, such as driving or operating machinery.

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Before prescribing, please consult complete product information, a summary of which follows:

Indications: Tension and anxiety states; somatic complaints which are concomitants of emotional factors; psychoneurotic states manifested by tension, anxiety, apprehension, fatigue, depressive symptoms or agitation; symptomatic relief of acute agitation, tremor, delirium tremens and hallucinosis due to acute alcohol withdrawal; adjunctively in skeletal muscle spasm due to reflex spasm to local pathology, spasticity caused by upper motor neuron disorders, athetosis, stiff-man syndrome, convulsive disorders (not for sole therapy).

Contraindicated: Known hypersensitivity to the drug. Children under 6 months of age. Acute narrow angle glaucoma; may be used in patients with open angle glaucoma who are receiving appropriate therapy.

Warnings: Not of value in psychotic patients. Caution against hazardous occupations requiring complete mental alertness. When used adjunctively in convulsive disorders, possibility of increase in frequency and/or severity of grand mal seizures may require increased dosage of standard anticonvulsant medication; abrupt withdrawal may be associated with temporary increase in frequency and/or severity of seizures. Advise against simultaneous ingestion of alcohol and other CNS depressants. Withdrawal symptoms (similar to those with barbiturates and alcohol) have occurred following abrupt discontinuance (convulsions, tremor, abdominal and muscle cramps, vomiting and sweating). Keep addiction-prone individuals under careful surveillance because of their predisposition to habituation and dependence. In pregnancy, lactation or women of childbearing age, weigh potential benefit against possible hazard.

Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

Side Effects: Drowsiness, confusion, diplopia, hypotension, changes in libido, nausea, fatigue, depression, dysarthria, jaundice, skin rash, ataxia, constipation, headache, incontinence, changes in salivation, slurred speech, tremor, vertigo, urinary retention, blurred vision. Paradoxical reactions such as acute hyperexcited states, anxiety, hallucinations, increased muscle spasticity, insomnia, rage, sleep disturbances, stimulation have been reported; should these occur, discontinue drug. Isolated reports of neutropenia, jaundice; periodic blood counts and liver function tests advisable during long-term therapy.

Dosage: Individualize for maximum beneficial effect. *Adults:* Tension, anxiety and psychoneurotic states, 2 to 10 mg b.i.d. to q.i.d.; alcoholism, 10 mg t.i.d. or q.i.d. in first 24 hours, then 5 mg t.i.d. or q.i.d. as needed; adjunctively in skeletal muscle spasm, 2 to 10 mg t.i.d. or q.i.d.; adjunctively in convulsive disorders, 2 to 10 mg b.i.d. to q.i.d. *Geriatric or debilitated patients:* 2 to 2½ mg, 1 or 2 times daily initially, increasing as needed and tolerated. (See Precautions.) *Children:* 1 to 2½ mg t.i.d. or q.i.d. initially, increasing as needed and tolerated (not for use under 6 months).

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BUDGET AND AUDIT COMMITTEE

The Committee met at 9:00 a.m. on Friday, May 5. Present were Drs. A. P. Reding, B. J. Begley, E. A. Rudolph, and James Shaeffer. Also in attendance were Robert D. Johnson and Patty Butler. James Rud, M.D. of Watertown attended the meeting as an observer.

The Committee reviewed the proposed budget and Mr. Johnson pointed out the budget items that would be changed due to the administration realignment in the executive office. The Committee reviewed the final report for the 1971-72 fiscal year. Due to the fact that the annual meeting was held on May 5, five days following the close of the fiscal year, the CPA audit was not available for inspection. However, the full audit report will be submitted to the committee when it is completed.

FIRST COUNCIL MEETING MINUTES

Thursday, May 4, 1972

The meeting was called to order at 7:00 p.m. by Fred Leigh, M.D., Chairman of the Council. Those present for roll call were Doctors Bartron, Taylor, Sattler, Reding, Quinn, Stransky, Leigh, Elston, Muggly, Seaman, Tracy, Lushbough, Swanson, Lewis, Begley, Reaney, Ruud, Cosand, Ryan, Bell, and Mr. Edwards, student representative, and Commission chairmen, Doctors Gregg, Rudolph, Heinrichs and Gerber.

Dr. Leigh welcomed Mr. Robert Johnson as the executive secretary of the State Medical Association. Dr. Leigh introduced Mr. Neil Sutherland from the Field Service Division of the American Medical Association.

Dr. Heinrichs, chairman of the Commission on Scientific Medicine, presented a follow-up report on Continuing Medical Education and submitted a list of proposed nominees to serve on an Advisory Committee on Continuing Medical Education.

Organization Proposal for the Advisory Committee for Continuing Medical Education

The Advisory Committee for Continuing Medical Education (ACCME) shall be composed of ten members which shall be selected as to represent the major medical fields. Particular attention will be paid to the fact that the majority of South Dakota physicians are in general practice.

Half of the members will be selected from the Commission on Scientific Medicine, two members shall be delegated from the South Dakota Chapter of the A.A.F.P., one member shall represent R.M.P. and one member shall represent the proposed Directors of Medical Education. Geographic representation shall be maintained.

Each member serves for a term of five years. These are staggered as to elect two new members each year. There is no limitation as to the number of succeeding terms. The Committee proposes nominees, the Council makes the appointment at the Annual Meeting.

The Committee elects its own Chairman and Secretary. Sub-committees can include non-Committee members, but must be headed by a Committee member.

Adequate minutes shall be kept. The minutes will be transmitted to the Commission on Scientific Medicine and to the Council. Decisions need ratification by the Council.

Technically the ACCME is a sub-committee of the Commission on Scientific Medicine. However, the Chairman of ACCME shall be an ex-officio member of the Commission on Scientific Medicine if he is not already a member of that Commission. Furthermore he shall have the privilege to report to the Council directly.

To be presented for approval by the Council of the South Dakota State Medical Association on May 4, 1972 in Sioux Falls, South Dakota.

Dr. Stransky moved that the Council accept the report of the Commission regarding Continuing Education and appoint the following to serve on the Advisory Committee on Continuing Education: T. Angelos, M.D.; E. H. Heinrichs, M.D.; W. J. Kovarik, M.D.; J. C. Larson, M.D.; R. R. Thornton, M.D.; W. L. Jones, M.D.; J. Lowe, M.D.; J. A. Hockenberry, M.D.; M. Marousek, M.D.; and one member from the Directors of Medical Education. The motion was seconded by Dr. Taylor and carried.

Dr. Heinrichs gave a follow-up report on a Drug Education Program and stated that he has contacted the Commissioner of Drugs and Dangerous Substances for information on the coordination of a state-wide drug program. Dr. Elston moved that the report be accepted. The motion was seconded by Dr. Bell and carried.

Dr. Quinn read the proposed resolution from the State Medical Association to the AMA House of Delegates concerning family practice residencies.

RESOLUTION

TO: House of Delegates
American Medical Association
FROM: South Dakota State Medical Association
SUBJECT: Family Practice Residencies
WHEREAS, The American Academy of Family Physicians' requirements for approval of residency training programs relate chiefly to urban areas, and
WHEREAS, The need for family practitioners in the rural areas of America is of critical importance, and
WHEREAS, Statistics have shown that a high percentage of young physicians remain in the area in which they complete their training;
BE IT RESOLVED, That the AMA through its Council on Medical Education and its liaison with the American Academy of Family Physicians, encourage the American Academy of Family Physicians to utilize the excellent training possibilities in the smaller cities remote from the large population centers by modifying such requirements concerning outpatient services, establishment of special clinics and use of rural hospital facilities, so that rural hospitals and clinics may be used to provide approved residency training.

Dr. Bartron moved that the Council accept this resolution as proposed. The motion was seconded by Dr. Lushbough and carried. The executive office was directed to send copies of this resolution to states in the North Central Conference and other states similar to South Dakota and ask their endorsement.

Dr. Muggly reported for the Ad Hoc Committee on Foundations. Dr. Cosand moved to accept the report of the Ad Hoc Committee and that the Council instruct this Committee to draw up a rough draft of corporate papers and regulations for a foundation which can be considered at the fall Council meeting. The motion was seconded by Dr. Bell and carried.

The Council considered the report of the Hartford Insurance Company regarding malpractice coverage for the information of the Council.

Dr. Gregg reported for the Commission on Legislation and stated that a letter had been received from the Lion's Sight and Service Foundation requesting endorsement of a law which would permit certified morticians to remove eyes for the eye banks. This material was submitted for the Council's information.

The Council considered the State Association endorsement of applications under the National Health Service Corps. Dr. Ruud moved that the Council authorize the executive office to endorse these applications if any district certifies to the need in a community of a physician from the National Health Service Corps. The motion was seconded by Dr. Bartron. Dr. Cosand moved that the motion be amended to state that the Executive Committee of the Council rule on all applications if any district certifies to the need of a physician. The motion was seconded by Dr. Sattler and carried. The motion was passed as amended. Dr. Stransky moved that the Council inform the National Health Service Corps director of the exact law stating that the district must approve all applications along with the state. The motion was seconded by Dr. Bartron and carried.

The Council discussed the request of the AMA for establishment of a Membership Committee. Mr. Johnson stated that the executive office has mailed out statements to all non AMA members asking them to join. Dr. Swanson moved that a Membership Committee not be formed and that the executive office furnish a list of non AMA members in each district to that district's Councilor. The motion was seconded by Dr. Reaney and carried.

Dr. Tracy moved that the Council submit a resolution to the 1972 House of Delegates to instigate a change in the composition of the Council to one Councilor for every fifty members of the district or fraction thereof. The motion was seconded by Dr. Begley and carried.

Dr. Reaney moved that the Council submit a resolution to the 1973 House of Delegates to allow each district to appoint an alternate for each Councilor. The motion was seconded by Dr. Reding and carried.

Mr. Neil Sutherland, AMA Field Service Division, reported on Action '72 and urged the State Medical Association to designate a committee on National Health Insurance education for physicians and wives. He also stated that materials on National Health Insurance are available through the AMA at no charge. No action was taken.

Nominations were in order for appointment to the SoDaPAC Board of Directors for a one year term. Dr. Tracy moved that the Council appoint the proposed slate if they will accept. Those proposed are Doctors W. R. Taylor, T. J. Wrage, D. L. Scheller, Barbara Spears, B. T. Lenz, James Vose, R. B. Leander, Lawrence Savage, J. T. Elston, Marion Cosand, C. A. Johnson, Eldon Bell and George Angelos. The motion was seconded by Dr. Ruud and carried.

The Council considered the resolution for the State Medical Journal Advertising Bureau. Dr. Bartron moved that the Council appoint Mr. Robert Johnson as proxy for the State Medical Journal Advertising Bureau. The motion was seconded by Dr. Elston and carried.

Dr. Bell moved that the South Dakota State Medical Association notes with profound disappointment that the 1972 annual meeting will sorely miss the presence and counsel of a member of the Board of Trustees and/or officer of the AMA. Because of the severe problems facing rural medicine today we wish to note that ten years will have elapsed before a positive response can now occur from our national organization. The motion was seconded by Dr. Quinn and carried. The executive office was directed to forward this resolution to Dr. Max Parrott at the AMA.

Dr. Bartron discussed a podiatrist's bill for the Council's information.

Dr. Hayes discussed an emergency medical service program for South Dakota and requested the Council's endorsement of this program. Dr. Muggly moved that the Council endorse the South Dakota Development of a Model Comprehensive Emergency Medical Services System. The motion was seconded by Dr. Swanson and carried.

Dr. Swanson moved that Dr. Stanley Fox be accepted for honorary membership in the State Medical Association. The motion was seconded by Dr. Ryan and carried. Dr. Taylor moved that Dr. G. J. Bloemendaal be accepted for honorary membership in the State Medical Association. The motion was seconded by Dr. Cosand and carried. Dr. Ryan moved that Dr. A. W. Spiry be accepted for honorary membership in the State Medical Association. The motion was seconded by Dr. Taylor and carried.

The meeting adjourned at 10:00 p.m.

SECOND COUNCIL MEETING
MINUTES
Sunday, May 7, 1972

The meeting was called to order by Fred Leigh, M.D., Chairman of the Council. Those present for roll call were Doctors Taylor, Sattler, Reding, Quinn, Stransky, Leigh, Elston, Bartron, Seaman, Tracy, Lushbough, Swanson, Lewis, Begley, Reaney, Ruud, Cosand, and student representative, Mr. Tom Edwards, and Commission chairman, E. H. Heinrichs, M.D.

Dr. Swanson moved to dispense with the reading of the minutes of the last meeting inasmuch as they will be published. The motion was seconded by Dr. Elston and carried.

Nominations were in order for Chairman of the Council. Dr. Swanson nominated Dr. Fred Leigh. The motion was seconded by Dr. Reding. Dr. Reaney moved that nominations cease and a unanimous ballot be cast for Dr. Leigh as Chairman of the Council. The motion was seconded by Dr. Elston and carried.

Dr. Gregg submitted a report from the O & O Society concerning the removal of eyes by morticians. Dr. Tracy moved that the Council accept this report. The motion was seconded by Dr. Seaman and carried.

Mr. Johnson discussed a proposal to hold Commission and Council meetings at various cities in South Dakota in an attempt to increase the attendance of physicians at these meetings.

PROPOSED MEETING DATES AND PLACES

Sept. 16	**Yankton**
	Commission on Medical Service
	Commission on Communications and Liaison
Sept. 23	**Rapid City**
	Commission on Scientific Medicine
	Commission on Legislation and Governmental Relations
	Commission on Internal Affairs
Oct. 14	**Huron**
	Council Meeting
Jan. 13	**Mitchell**
	Council Meeting
March 31	**Watertown**
	Commission on Scientific Medicine
	Commission on Legislation and Governmental Relations
	Commission on Internal Affairs
April 7	**Aberdeen**
	Commission on Medical Service
	Commission on Communications and Liaison
April 28	**Sioux Falls**
	Council Meeting

Dr. Swanson moved that the proposed schedule be adopted, relative to change, depending on how it works out. The motion was seconded by Dr. Reaney and carried.

The Council considered the appointment of two representatives to serve on the Regional Medical Program Advisory Committee. Dr. Lushbough moved that Mr. Robert Johnson and J. A. Muggly, M.D. represent the State Medical Association on the Regional Medical Program Advisory Committee. The motion was seconded by Dr. Sattler and carried.

The meeting adjourned at 3:30 p.m.

FIRST HOUSE OF DELEGATES MEETING

Friday, May 5, 1972

Sioux Falls, South Dakota

The meeting was called to order by John T. Elston, M.D., Speaker of the House. Those present for roll call included Doctors Bartron, Taylor, Sattler, Reding, Elston, Quinn, Stransky, Muggly, Seaman, Tracy, Swanson, Leigh, Lewis, Begley, Reaney, Ruud, Cosand, Ryan, Bell, Odland, Rudolph, Fedt, Auskaps, Belatti, Scheller, Spears, Gryte, Karlen, Gere, Mabee, Daw, Shaeffer, Lang, Ortmeier, McDonald, Rossing, Gregg, Halverson, Radack, Blunck, Barrett, Russell Harris, C. B. Gwinn, M. G. Langenfeld, Nemer and students, Mr. Tom Edwards, Mr. Nolan Anderson and Mr. Mike Haley.

Dr. Begley moved to dispense with the reading of the minutes of the last meeting inasmuch as they have been published. The motion was seconded by Dr. Leigh and carried.

Dr. Bartron as president of the State Medical Association, appointed the following physicians to the Nominating Committee: Thomas Bunker, M.D.; R. Auskaps, M.D.; Donald Scheller, M.D.; Barbara Spears, M.D.; Fred Leigh, M.D.; Judson Mabee, M.D.; Denny Ortmeier, M.D. (Chairman); R. W. Honke, M.D.; E. T. Ruud, M.D.; M. R. Cosand, M.D.; L. M. Linde, M.D. and L. C. Vogelgesang, M.D.

Dr. Elston read the appointments of the Reference Committees as follows:

Reference Committee on Credentials
- Russell Harris, M.D., Chairman
- W. O. Rossing, M.D.
- C. F. Gryte, M.D.

Reference Committee on Reports of Officers and Councilors
- Richard Gere, M.D., Chairman
- Durward Lang, M.D.
- R. G. Belatti, M.D.

Reference Committee on Resolutions and Memorials
- C. J. McDonald, M.D., Chairman
- L. G. Behan, M.D.
- G. H. Steele, M.D.

Reference Committee on Reports of the Commission on Communications and Liaison and Medical Service
- R. G. Nemer, M.D., Chairman
- Morris Radack, M.D.
- A. J. Barrett, M.D.

Reference Committee on Reports of the Commissions on Scientific Medicine, Internal Affairs and Legislation and Governmental Relations.
- J. B. Gregg, M.D., Chairman
- W. H. Golliher, M.D.
- D. N. Fedt, M.D.

Reference Committee on Reports of Special Committees and Miscellaneous Business
- G. E. Tracy, M.D., Chairman
- Winston Odland, M.D.
- James Ryan, M.D.

The chair asked for introduction of resolutions from the floor. Dr. Elston read a resolution from the Council concerning the enlargement of the Council.

RESOLUTION #9

TO: House of Delegates
South Dakota State Medical Association

FROM: Council of the
South Dakota State Medical Association

SUBJECT: Enlargement of the Council

BE IT RESOLVED, that the 1972 House of Delegates instigate a change in the composition of the Council so that there is one Councilor for every fifty members or fraction thereof for each district.

(Adopted - Refer to 2nd House of Delegates Meeting)

He referred this Resolution #9 to the Reference Committee on Reports of Special Committees and Miscellaneous Business.

Dr. Elston referred Resolution #1, #2, #3 and #5 to the Reference Committee on Reports of Special Committees and Miscellaneous Business.

RESOLUTION #1

TO: House of Delegates
South Dakota State Medical Association

FROM: Second District Medical Society

SUBJECT: University of South Dakota Medical School

WHEREAS, the curriculum of medical education is undergoing a rapid evolution and change and as a result of this the future of orderly transfer of two-year graduates of the University of South Dakota Medical School may be in jeopardy, and

WHEREAS, the recommendation of independent studies of medical education nationally and also specifically in South Dakota, i.e.; the Carnegie Report, the Hardin Report and the Governor's task force have recommended the implementation of a degree-granting program at the University of South Dakota Medical School, and

WHEREAS, the Board of Regents of the State of South Dakota has unanimously agreed to the principal of developing a degree-granting program at the University of South Dakota Medical School, and

WHEREAS, the administrative department of the University Medical School have deemed the principal of establishing a degree-granting program feasible, practical and possible, and

WHEREAS, the House of Delegates of the South Dakota State Medical Association, the Commission on Medical Service and the Council of the South Dakota State Medical Association have adopted the recommendation of a degree-granting program at the University of South Dakota Medical School,

NOW THEREFORE BE IT RESOLVED BY THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION, that the President of the South Dakota State Medical Association delegate a committee or a commission to review the various approaches that have been presented regarding medical education and its problems in South Dakota, and arrive at a concise and definite recommendation which would embody the thoughts of the majority of the members of the medical profession in the State of South Dakota and would serve as a useful tool in the coordination of the efforts of the medical school administration and the Board of Regents, as such to be presented as a recommendation to the next legislative session, and

BE IT FURTHER RESOLVED, that this committee or commission, along with the Council of the South Dakota State Medical Association, be delegated the responsibility of making a firm decision for the medical profession in the State of South Dakota.

(Adopted - see 2nd House of Delegates meeting)

RESOLUTION #2

TO: House of Delegates
South Dakota State Medical Association
FROM: Huron (5th) District Medical Society
SUBJECT: M. D. Degree Granting Medical School at the University of South Dakota

WHEREAS, there is a shortage of physicians in South Dakota,

WHEREAS, there is a maldistribution of physicians in South Dakota,

WHEREAS, the present two-year basic science medical school at the University of South Dakota does not provide a complete medical education leading to an M. D. degree being awarded by the University, and

WHEREAS, the presently constituted two year medical school at the University of South Dakota does not have the capability or resources for providing for South Dakota's physician manpower needs,

THEREFORE, BE IT RESOLVED, we, the members of the Huron District Medical Society, do request that the South Dakota State Medical Association give serious consideration to support an intensive educational program for individual physicians and District Medical Societies to inform them about the proposed M. D. degree granting medical school at the University of South Dakota. Following this educational program, physicians should be polled in writing as to their support or non-support of said medical school.

(Rejected - See 2nd House of Delegates Meeting)

RESOLUTION #3

TO: House of Delegates
South Dakota State Medical Association
FROM: Huron (5th) District Medical Society
SUBJECT: M. D. Degree Granting Medical School at the University of South Dakota

WHEREAS, there is a shortage of physicians in South Dakota,

WHEREAS, there is a maldistribution of physicians in South Dakota,

WHEREAS, the present two-year basic science school at the University of South Dakota does not provide a complete medical education leading to an M. D. degree being awarded by the University and,

WHEREAS, the presently constituted two-year medical school at the University of South Dakota does not have the capability or resources for providing for South Dakota's physician manpower needs,

THEREFORE, BE IT RESOLVED, we, the members of the Huron District Medical Society, do request that the South Dakota Medical Association give serious consideration to endorsing the establishment of an M. D. degree granting medical school by the University of South Dakota using the facilities and resources of the two-year medical school in Vermillion and existing hospital and health care facilities in the State.

(Rejected - See 2nd House of Delegates Meeting)

RESOLUTION #5

TO: House of Delegates
South Dakota State Medical Association
FROM: Sioux Falls (7th) District Medical Society
SUBJECT: Basic Science Renewal Fee

WHEREAS, the membership of the Seventh District is against a 100 percent raise in the annual basic science licensing fee, and

WHEREAS, the avowed purpose of the funds collected is in part to retain a lawyer to investigate and prosecute those purveyors of quackery who attempt to practice their arts in the state of South Dakota, and

WHEREAS, the duly elected office of Attorney General is deemed adequate to legally prevent these purveyors of quackery from practicing their arts in the state of South Dakota,

AND WHEREAS, the record of successful suits brought against these purveyors of quackery in the state of South Dakota by the Board of Basic Science Examiners seems inconsistent with the monies reportedly expended for legal counsel,

THEREFORE BE IT RESOLVED, that the annual basic science licensing fee be returned to its $10 original level, and

BE IT FURTHER RESOLVED, that an accounting be made of all funds collected and expended by the State Board of Basic Science Examiners since its inception.

(Rejected - see 2nd House of Delegates meeting)

Dr. Elston referred Resolution #4 to the Nomination Committee.

RESOLUTION #4

TO: House of Delegates
South Dakota State Medical Association
FROM: Watertown (2nd) District Medical Society
SUBJECT: Annual Meeting Sites

WHEREAS, the logistics of a South Dakota State Medical Association Meeting requires adequate space in terms of meeting rooms, banquet halls and services, and

WHEREAS, not all cities are sufficiently equipped to handle a meeting of this magnitude,

BE IT RESOLVED, that the House of Delegates in the future consider applications from Sioux Falls, Rapid City and Aberdeen only, until such time as convention facilities are available elsewhere.

(Adopted - see 2nd House of Delegates meeting)

Dr. Elston referred Resolution #6 to the Reference Committee on Reports of the Commissions on Communications and Liaison and Medical Service.

RESOLUTION #6

TO: House of Delegates
South Dakota State Medical Association
FROM: Sioux Falls (7th) District Medical Society
SUBJECT: Revision of Relative Value Study

WHEREAS, the last changes in the South Dakota Relative Value Study were made in 1965, and

WHEREAS, there is a need for updating the South Dakota Relative Value Study, especially as it pertains to new procedures,

THEREFORE BE IT RESOLVED, that a committee be created by the South Dakota State Medical Association to formulate a new Relative Value Study.

(Adopted - see 2nd House of Delegates Meeting)

Dr. Elston referred Resolution #7 and #8 to the Reference Committee on Reports of the Commission on Scientific Medicine, Internal Affairs and Legislation and Governmental Relations.

RESOLUTION #7

TO: House of Delegates
South Dakota State Medical Association
FROM: Sioux Falls (7th) District Medical Society
SUBJECT: Funding of Intern and Residency Programs

WHEREAS, there is an acute shortage of physicians nationwide and more specifically in our state of South Dakota, and

WHEREAS, the population projections of the future require even greater numbers of physicians, and

WHEREAS, the internship programs of Sioux Valley and McKennan Hospitals must be integrated into a residency program, and

WHEREAS, the Seventh District Medical Society has recommended that graduate medical education be preserved in our community, and

WHEREAS, South Dakota's need is for family physicians in rural and semi-rural areas, and

WHEREAS, the records of the intern programs show a high percentage of the graduates remain in South Dakota, and

WHEREAS, the Seventh District Medical Society has recommended that appropriate steps be taken to develop a Family Practice Residency Program, and

WHEREAS, the expenses of a Family Practice Residency Program are considerable,

THEREFORE BE IT RESOLVED, that the Seventh District Medical Society requests the South Dakota State Medical Association to endorse and provide in its legislative program the support of State funding for intern and residency programs in the state of South Dakota.

(Adopted - see 2nd House of Delegates meeting)

RESOLUTION #8

TO: House of Delegates
South Dakota State Medical Association
FROM: Sioux Falls (7th) District Medical Society
SUBJECT: Prescribing of Cyclamates

WHEREAS, Cyclamates furnish the only effective sweetening agent available to diabetics, and
WHEREAS, the Federal government has rescinded all licenses for the manufacturer of cyclamates,
THEREFORE BE IT RESOLVED, that the South Dakota State Medical Association petition the Federal government for the right of the private physician to prescribe this substance to individual patients.
(Adopted - see 2nd House of Delegates meeting)

Mr. Erickson addressed the House of Delegates and thanked them for their support during the time he served as Executive Secretary for the State Association.

Dr. Bartron moved that the meeting adjourn. The motion was seconded by Dr. Gregg and carried.

SECOND MEETING OF THE HOUSE OF DELEGATES
Sunday, May 7, 1972
Sioux Falls, South Dakota

The meeting was called to order by J. T. Elston, M.D., Speaker of the House.

Present for roll call were Doctors Bartron, Taylor, Sattler, Reding, Elston, Quinn, Stransky, Muggly, Seaman, Tracy, Lushbough, Swanson, Leigh, Lewis, Begley, Reaney, Ruud, Cosand, Ryan, Steele, Rudolph, Fedt, Auskaps, Belatti, Scheller, Spears, Gryte, Karlen, Gere, Daw, Shaeffer, Lang, Ortmeier, McDonald, Rossing, Gregg, Honke, Halverson, Radack, Blunck, Harris, Langenfeld, Nemer, Vogelgesang and student representatives, Mr. Nolan Anderson, Mr. Tom Edwards and Ms. Anita Robinson.

Dr. Gregg moved to dispense with the reading of the minutes of the last meeting inasmuch as they will be published. The motion was seconded by Dr. Leigh and carried.

The report of the Nominating Committee was read by Dr. Denny Ortmeier.

REPORT OF THE NOMINATING COMMITTEE

The Committee considered the nominations for Councilors from Districts 3, 5, 6 and 7. The following nominees are presented to the House of Delegates for consideration:

District #3	Bruce Lushbough, M.D.
District #5	Fred Leigh, M.D.
District #6	Harvard Lewis, M.D.
District #7	B. J. Begley, M.D.

The Committee nominates the following for officers of the Association:

President, W. R. Taylor, M.D.
President Elect, T. H. Sattler, M.D.
Vice President, R. E. Van Demark, M.D.
AMA Delegate, R. H. Quinn, M.D.
AMA Alternate Delegate, J. J. Stransky, M.D.
Speaker of the House, J. T. Elston, M.D.

The Committee considered Resolution #4, Annual Meeting Sites, and recommended the adoption of this resolution.

Sites for future annual meetings were discussed. The Committee proposes the following:

1973 — Rapid City
June 8, 9, 10 (if facilities available on these dates)
1974 — Aberdeen
1975 — Sioux Falls
1976 — Rapid City

Respectfully submitted,
NOMINATING COMMITTEE
Denny Ortmeier, M.D., Chairman
R. Auskaps, M.D.
Donald Scheller, M.D.
Barbara Spears, M.D.
Fred Leigh, M.D.
Judson Mabee, M.D.
R. W. Honke, M.D.
E. T. Ruud, M.D.
M. R. Cosand, M.D.

Dr. Swanson moved to accept the recommendations of the Nominating Committee and he moved that a unanimous ballot be cast for the proposed nominees. The motion was seconded by Dr. Auskaps and carried.

The report of the Reference Committee on Credentials was read by Dr. Harris.

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REPORT OF THE REFERENCE COMMITTEE ON CREDENTIALS

The credentials of the Delegates to the South Dakota State Medical Association were checked and the following delegates, alternates, officers and councilors were present: Winston Odland, M.D.; E. A. Rudolph, M.D.; David Seaman, M.D.; Romans Auskaps, M.D.; D. N. Fedt, M.D.; J. Rud, M.D.; G. E. Tracy, M.D.; Donald Scheller, M.D.; Richard Belatti, M.D.; Werner Klar, M.D.; Bruce Lushbough, M.D.; Barbara Spears, M.D.; C. L. Swanson, M.D.; Clifford Gryte, M.D.; L. W. Karlen, M.D.; Fred Leigh, M.D.; Richard Gere, M.D.; Judson Mabee, M.D.; Harvard Lewis, M.D.; Denny Ortmeier, M.D.; Edward Daw, M.D.; W. O. Rossing, M.D.; James Shaeffer, M.D.; Durward Lang, M.D.; John Gregg, M.D.; C. J. McDonald, M.D.; Milton Mutch, M.D.; Richard Leander, M.D.; P. K. Aspaas, M.D.; B. J. Begley, M.D.; Duane Reaney, M.D.; R. W. Honke, M.D.; Kenneth Halverson, M.D.; Morris Radack, M.D.; Mat Langenfeld, M.D.; C. F. J. Blunck, M.D.; R. H. Harris, M.D.; A. J. Barrett, M.D.; C. B. Gwinn, M.D.; E. T. Ruud, M.D.; R. G. Nemer, M.D.; M R. Cosand, M.D.; James Ryan, M.D.; Eldon Bell, M.D.; G. R. Bartron, M.D.; W. R. Taylor, M.D.; T. H. Sattler, M.D.; A. P. Reding, M.D.; J. T. Elston, M.D.; R. H. Quinn, M.D.; J. J. Stransky, M.D.; J. A. Muggly, M.D.; and medical students, Mr. Tom Edwards, Mr. Nolan Anderson and Mr. Mike Haley.

A quorum was present for the meeting of the House of Delegates and the credentials of those in attendance were in order. The total registration for the convention is 360, including 184 physicians, 45 guests, 115 Auxiliary members and 16 sponsors.

Respectfully submitted,
REFERENCE COMMITTEE
ON CREDENTIALS
Russell Harris, M.D., Chairman
W. O. Rossing, M.D.
C. F. Gryte, M.D.

Mr. Speaker, I move for the adoption of this report.

Dr. Gregg moved that the House of Delegates accept this report. The motion was seconded by Dr. Ortmeier and carried.

Dr. Gere read the report of the Reference Committee on Reports of Officers and Councilors.

REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF OFFICERS AND COUNCILORS

The Committee has reviewed and approved the report of the President and wishes to commend Dr. Bartron for his leadership and many hours of untiring service to the South Dakota State Medical Association.

The Committee also reviewed the reports of the other officers and Councilors and approved such reports.

A special note of commendation is made to the Executive Secretary, Richard C. Erickson, for his fine work and past years of service.

The report of the Council was received and approved.

Resolution #9 dealing with reapportionment of the Council was reviewed. Inasmuch as action cannot be taken on this Bylaw change this year, the Committee recommends that Resolution #9 be accepted as a "resolution of intent" and that the proper bylaw change be brought back to the House of Delegates in proper form at the next House of Delegates meeting.

The Committee also wishes to extend its enthusiastic support and best wishes to the new President, Dr. Taylor.

Mr. Speaker, I move adoption of the report of the Reference Committee.

Respectfully submitted,
REFERENCE COMMITTEE ON
REPORTS OF OFFICERS AND
COUNCILORS
R. G. Gere, M.D., Chairman
Durward Lang, M.D.
R. G. Belatti, M.D.

Dr. Leigh moved that the House of Delegates accept this report. The motion was seconded by Dr. Lushbough and carried.

Dr. McDonald read the report of the Reference Committee on Resolutions and Memorials.

REPORT OF THE REFERENCE COMMITTEE ON RESOLUTIONS AND MEMORIALS

WHEREAS, the Seventh District Medical Society and the Fifth and Seventh District Ladies Auxiliary members have been so thorough in making arrangements for the success of the combined meeting of our 91st anniversary,

BE IT RESOLVED, that the South Dakota State Medical Association give its voice in appreciation and thanks to the Seventh District Medical Society and the Fifth and Seventh District Ladies Auxiliary.

WHEREAS, the management of the Ramada Inn and the Howard Johnson Motor Lodge has been so cooperative in providing facilities for the success of the 91st Annual Meeting of the South Dakota State Medical Association,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to the Ramada Inn and the Howard Johnson Motor Lodge.

WHEREAS, the Sioux Falls Chamber of Commerce has provided excellent assistance in making it possible for the success of the working arrangements,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to the Sioux Falls Chamber of Commerce.

WHEREAS, the Sioux Falls Argus Leader, KSOO and KELO have been most cooperative in presenting the public news of the 91st Annual Meeting of the South Dakota State Medical Association,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks to the Sioux Falls Argus Leader, KELO and KSOO.

WHEREAS, The Westward Ho Country Club has provided facilities for the stag party and for the Auxiliary luncheon and has contributed greatly to the success of the Annual Meeting,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks to the Westward Ho Country Club.

WHEREAS, South Dakota Blue Shield has sponsored the social hour prior to the annual banquet and contributed greatly to the success of the Annual Meeting,

BE IT RESOLVED, that the South Dakota State Medical Association extend its thanks and appreciation to South Dakota Blue Shield.

BE IT RESOLVED, that $50 be donated to the South Dakota Medical School Endowment Association in memory of the following physicians who died during the past year: E. T. Lietzke, M.D.; G. W. Mills, M.D.; Paul G. Bunker, M.D.; Max Reade, M.D.; and Goldie Zimmerman, M.D.

Respectfully submitted
REFERENCE COMMITTEE ON
RESOLUTIONS AND
MEMORIALS
C. J. McDonald, M.D., Chairman
L. G. Behan, M.D.
G. H. Steele, M.D.

Mr. Speaker, I move for the adoption of the report of this Reference Committee.

Dr. McDonald moved that the House of Delegates accept this report. The motion was seconded by Dr. Rudolph and carried.

The report of the Reference Committee on Reports of the Commissions on Communications and Liaison and Medical Service was read by Dr. Nemer.

REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF THE COMMISSIONS ON COMMUNICATIONS AND LIAISON AND MEDICAL SERVICE

The Reference Committee considered the report of the Commission on Medical Service. The Reference Committee recommended that the report of the Commission on Medical Service be accepted.

The Reference Committee considered the report of the Commission on Communications and Liaison. The Reference Committee recommended that the report of the Commission on Communications and Liaison be accepted.

The Reference Committee considered Resolution #6, Revision of the Relative Value Study. The Reference

Committee recommended that this Resolution #6 be adopted with the following addition:

"This study committee should also consider an annual review of the Relative Value Study with an ongoing committee to keep South Dakota's Relative Value Study current."

Respectfully submitted,
REFERENCE COMMITTEE ON
REPORTS OF THE COMMISSIONS
ON COMMUNICATIONS AND
LIAISON AND MEDICAL SERVICE
R. G. Nemer, M.D., Chairman
A. J. Barrett, M.D.
Morris Radack, M.D.

Mr. Speaker, I move for the adoption of the report of this Reference Committee.

Dr. Nemer moved that the House of Delegates accept the report of this Reference Committee. The motion was seconded by Dr. Gere and carried.

Dr. Gregg read the report of the Reference Committee on Reports of the Commissions on Scientific Medicine, Internal Affairs, and Legislation and Governmental Relations.

REPORT OF THE REFERENCE COMMITTEE ON THE COMMISSIONS ON SCIENTIFIC MEDICINE, INTERNAL AFFAIRS, AND LEGISLATION AND GOVERNMENTAL RELATIONS

The Reference Committee considered the Report of the Commission on Scientific Medicine and suggests that the Medical Association support the concern expressed about the Drug Education Program and support the efforts presently undertaken by the Medical Association to get a Leadership Conference on Drug Education Programs under way in South Dakota to group the Drug Education Programs which exist in the state.

Attention is also called to the fact that later this year there will be a report available on a continuing medical education program in South Dakota. It is suggested that this plan be carefully studied and educational effort be made toward the physicians in the state who understand the rationale behind this medical education program. It is stressed that this would be a voluntary program.

The Reference Committee recommends the acceptance of this report with special attention to the above factors.

The Reference Committee recommends the acceptance of the Report of the Commission on Internal Affairs.

The Reference Committee recommends the acceptance of the Report of The Commission on Legislation and Governmental Relations.

The Reference Committee recommends that Resolution #8 from the Seventh District Medical Society be accepted by the House of Delegates of the South Dakota State Medical Association and that the South Dakota State Medical Association refer this matter to the American Medical Association Council on Drugs with the request that the AMA Council on Drugs take action to restore cyclamates as a prescription drug.

The Reference Committee recommends to the House of Delegates of the South Dakota State Medical Association that they endorse Resolution #7, and that this resolution be coordinated with the Legislative Committee as far as presentation to the Legislature is concerned.

Respectfully submitted,
REFERENCE COMMITTEE ON
REPORTS OF THE COMMISSIONS
ON SCIENTIFIC MEDICINE,
INTERNAL AFFAIRS, AND
LEGISLATION AND
GOVERNMENTAL RELATIONS
John B. Gregg, M.D., Chairman
M. G. Langenfeld, M.D.
D. N. Fedt, M.D.

Dr. Gregg moved that the House of Delegates accept this report, and the motion was seconded by Dr. Stransky. Dr. Cosand moved that the report be amended to read that Resolution #7 be referred to the Commission on Legislation and Governmental Relations and action left to the discretion of the Commission and Council as to whether this should be endorsed by the South Dakota State Medical Association. The motion was seconded by Dr. Leigh and carried. Dr. Bartron moved that the House of Delegates accept this Reference Committee report as amended. The motion was seconded by Dr. Seaman and carried.

Dr. Tracy read the report of the Reference Committee on Reports of Special Committees and Miscellaneous Business.

REPORT OF THE REFERENCE COMMITTEE ON REPORTS OF SPECIAL COMMITTEES AND MISCELLANEOUS BUSINESS

The Committee reviewed the report of the Executive Committee and recommends the acceptance of this report.

The Committee reviewed the report of the Grievance Committee and recommends the acceptance of this report.

The Committee reviewed the report of the Utilization and Insurance Review Committee and recommends the acceptance of this report.

The Committee heard lengthy testimony concerning medical education in South Dakota which was the subject of Resolutions #1, #2, and #3.

Resolution #1 submitted by the Watertown District Medical Society. The Committee recommends the adoption of this resolution.

Resolution #2, submitted by the Huron District Medical Society. The Committee recommends that Resolution #2 not be adopted inasmuch as the ideas expressed in the resolution would be included in the completion of Resolution #1.

Resolution #3, submitted by the Huron District Medical Society. The Committee recommends that Resolution #3 not be adopted inasmuch as it would limit the charge and responsibility of the committee appointed in the execution of Resolution #1.

Resolution #5, submitted by the Seventh District Medical Society, concerning the Basic Science renewal fee was reviewed by the Committee. We reviewed the presentation that was made to the Council in September, 1971, when they endorsed the increase in the renewal fee. We reviewed a letter submitted by Mr. Zimmer and feel that the allegations made in the resolution are not well founded and that the responsibilities of the Basic Science Board are being carried out very well, which includes the protection of the people of South Dakota from the practice of quackery. Attempts to protect people from quackery practice by other avenues have been unsuccessful. The present method has been successful.

We further recommend that Mr. John Zimmer's report as submitted to this committee, which includes expenditures of the Board, be published in the South Dakota Journal of Medicine.

The Reference Committee further endorses the action of the Council which had reviewed the materials prior to their action last September. We feel that the increase in the fee is well founded. We recommend this resolution not be adopted.

Respectfully submitted,
REFERENCE COMMITTEE ON
REPORTS OF SPECIAL
COMMITTEES AND MISCEL-
LANEOUS BUSINESS
G. E. Tracy, M.D., Chairman
Winston Odland, M.D.
James Ryan, M.D.

The Reference Committee moves the adoption of this report.

Dr. Bartron moved that the recommendation regarding Resolution #1 be accepted by the House of Delegates. The motion was seconded by Dr. Auskaps and carried.

Dr. Leigh moved that the recommendation regarding Resolution #2 be accepted by the House of Delegates. The motion was seconded by Dr. Begley and carried.

Dr. Sattler moved that the recommendation regarding Resolution #3 be accepted by the House of Delegates. The motion was seconded by Dr. Nemer and carried.

Following discussion, Dr. Bartron moved that the recommendation regarding Resolution #5 be accepted by the House of Delegates. The motion was seconded

by Dr. Gryte and carried.

Dr. Tracy moved that the House of Delegates accept the report of this Reference Committee. The motion was seconded by Dr. Lushbough and carried.

Dr. Elston administered the Oath of Office to Dr. W. R. Taylor, the newly elected president. Dr. Taylor presented a commemorative gavel to Dr. Bartron.

Dr. Elston introduced the new officers including Dr. Taylor, president; Dr. T. H. Sattler, president elect; Dr. R. E. Van Demark, vice president; Dr. R. H. Quinn, AMA delegate; Dr. J. J. Stransky, alternate AMA delegate; and himself as speaker of the house.

Dr. Sattler moved that the meeting be adjourned. The motion was seconded by Dr. Rudolph and carried.

REPORT OF THE PRESIDENT

As your President, I attended both the clinical and annual session of the American Medical Association along with the delegate Dr. R. H. Quinn and alternate delegate Dr. John Stransky. The affairs of organized medicine are rapidly changing and the attendance at these meetings was very enlightening.

In addition to this, as a member of the Council, I have attended all of the Council meetings and many commission meetings. I have also made visitations to all of the Districts and was most graciously received.

The most important problem facing the medical association in South Dakota this year, in my opinion, has been the direction medical education at the University would take in future years. The House of Delegates in the past went on record as supporting the concept of developing a degree-granting program at the University Medical School and the Council also adopted this principal. As your spokesman for this past year, and on this direction, I have attempted to discuss the problems of medical education and the establishment of a degree-granting program at the University with all of the Districts. These discourses have been in some instances rather spirited but in all instances enlightening and informative.

It appears that there is a considerable amount of misunderstanding of the program as it is currently envisioned by the administration of the medical school and there is also apparent lack of knowledge of the problems in this area by many of our members throughout the state.

A proposed bill was submitted to the legislature which would have accomplished two things:

(1) The establishment of a degree-granting program, and

(2) Funds for next year of $500,000 for initial implementation of this program.

The legislation prepared was fairly well accepted, but because of a lack of available monies for the support of expansion of state government in all phases, was not funded.

The rapid changes both in the curriculum in medical education and the future of a two-year medical school bear the closest scrutiny of our association in the forthcoming year. The viability of a two-year school appears to be questionable in the foreseeable future. I think no other problem facing our association demands more understanding and attention in the next year.

My relationship with the state office and our Executive Secretary, Mr. Richard Erickson, and his very accomplished staff has been very cordial and I commend their activities on behalf of the association to each and every one of you.

As your President, I have had the very enjoyable opportunity to meet many of the practicing physicians throughout the state whom I have not previously had acquaintance with and as a result of this opportunity I feel I have a much better understanding and better knowledge of the problems that we face as private practitioners in medicine.

It has been a very rewarding experience to me and I want to thank all of you for the privilege of having been able to serve as your President during this past year.

Respectfully,
G. Robert Bartron, M.D.
President

The Committee has reviewed and approved the report of the President and wishes to commend Dr. Bartron for his leadership and many hours of untiring service to the South Dakota State Medical Association.

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REPORT OF THE PRESIDENT-ELECT

The President-Elect attended all Council and Executive Committee meetings during the year 1971-1972, and performed the functions of the President-Elect.

Respectfully submitted,
W. R. Taylor, M.D.
President-Elect

The Committee has reviewed the Report of the President-Elect and recommends its approval. The Committee also wishes to extend its enthusiastic support and best wishes to the new President, Dr. Taylor.

REPORT OF THE VICE PRESIDENT

I have enjoyed the opportunity to participate in Council deliberations and the Commission on Medical Service this past year. As a member of the Executive Committee of the Medical School faculty, medical education has been an important area of interest.

Respectfully submitted,
T. H. Sattler, M.D.
Vice President

The Committee reviewed the Report of the Vice President and recommends its approval.

REPORT OF THE SECRETARY-TREASURER

As your officer, I attended the first meeting of the Budget and Audit Committee at the Howard Johnson Motor Lodge in Rapid City, May 21, 1971, and the second at our executive office in Sioux Falls, December 18, 1971. I attended the Council meetings during the year.

The other duties of my office were carried out with the assistance of our competent executive secretary, Richard C. Erickson, and the staff at the association office.

Respectfully submitted,
A. P. Reding, M.D.
Secretary-Treasurer

The Committee reviewed the Report of the Secretary-Treasurer and recommends its approval.

REPORT OF THE SPEAKER OF THE HOUSE

As Speaker of the House, I have attended Council meetings and participated in conferences of the Executive Committee of the South Dakota State Medical Association. Chairmen and members of the Reference Committees will be appointed prior to the annual meeting of the House of Delegates which will meet in Sioux Falls, in May, 1972.

Respectfully submitted,
John T. Elston, M.D.
Speaker of the House

The Committee reviewed the Report of the Speaker of the House and recommends its approval.

REPORT OF AMA DELEGATE

Your delegate and your alternate delegate, John Stransky, attended both the annual meeting in Atlantic City and the clinical session in New Orleans.

Summaries of those meetings have been published in the various AMA releases. Reports of these sessions have been submitted to your officers.

It is the hope of the delegate and alternate delegate, that resolutions and reports from the AMA to be considered at national meetings be more widely distributed and considered by a greater number of our members of the South Dakota State Medical Association prior to such meetings. It is also hopeful that we can obtain more input from the South Dakota State Medical Association members concerning decisions to be made at the AMA level.

In order to make the positions of the AMA delegate and alternate delegate truly representative at the AMA level, we need your help, ideas and suggestions. It would be most beneficial to us if you would contact us regarding your concerns and suggestions in regard to organized medicine.

It is to be brought to the attention of the members of the South Dakota State Medical Association that an open hearing will be held in San Francisco prior to the annual 1972 AMA meeting concerning the future plans and course that the AMA should follow. This meeting is open to all doctors of medicine whether members of the AMA or not. This session could be the most meaningful one held for years and to make it a success, the general feeling of the members of all state societies should be presented.

Respectfully submitted,
Robert H. Quinn, M.D.
AMA Delegate

The Committee reviewed the report of the AMA Delegate and recommends its approval.

REPORT OF THE AMA ALTERNATE DELEGATE

My term as Alternate Delegate began in June of 1971. I did attend both the annual meeting in Atlantic City and the clinical session in New Orleans. In addition, I have also attended the Council meetings during the past year.

Respectfully submitted,
J. J. Stransky, M.D.
AMA Alternate Delegate

The Committee reviewed the Report of the AMA Alternate Delegate and recommends its approval.

REPORT OF THE COUNCILOR-AT-LARGE

I attended all of the Council meetings and also other special meetings. I have also endeavored to gather information on medical foundations.

Respectfully submitted,
J. A. Muggly, M.D.
Councilor-at-Large

The Committee reviewed the Report of the Councilor at Large and recommends its approval.

REPORT OF THE CHAIRMAN OF THE COUNCIL

Since I have been Chairman of the Council, we have had two meetings.

The first meeting was held Friday and Saturday, September 10 and 11, 1971 at the Howard Johnson Motor Hotel in Sioux Falls, S.D. The minutes of this meeting have been entered in the South Dakota State Medical Journal, and also, you should have received a report from your Councilor. Therefore, I see no reason to reiterate this information at the present time.

The second meeting of the Council was held at the Ramada Inn at Sioux Falls, S.D., on Saturday, January 8, 1972. Here, again, the entire proceedings of this meeting have been entered in the South Dakota State Medical Journal and also reports should have been presented to you, of the most salient points of the meeting by your respective representative.

At the time of this report, our next scheduled meeting is for March 25, in Sioux Falls, S.D.

Respectfully submitted,
F. D. Leigh, M.D.
Chairman of the Council

The Committee reviewed the Report of the Chairman of the Council and recommends its approval.

REPORT OF THE EXECUTIVE SECRETARY

The report was prepared in late February of this year; therefore, some of the comments include projections through April 30, 1972. It was necessary to prepare the report in February in order to meet mailing deadlines.

Liaison with District Societies

Eleven of the twelve district medical societies were visited this year by President Bartron and at least one member of the executive staff. Continuous liaison was maintained with Councilors and officers of the various district societies, by telephone, mail and personal visitations. Activity within the district societies is most important, and we would recommend that all district medical societies attempt to meet on a regularly scheduled basis throughout the year.

Public and Professional Relations

This past year, President Bartron, other physicians and members of your staff have represented you at 70 meetings and have traveled 57,000 miles in an attempt to obtain and transmit information which is of value to the profession. Continued liaison with legislators, the news media and paramedical groups remains a top priority with your staff. Of equal importance are the contacts made with the lay public on your behalf. We feel certain that our efforts are beginning to create a

better image of medicine in South Dakota. Good public relations by the individual physician is, however, the key to a successful P.R. program.

Headquarters Building

The Association building located in Sioux Falls continues to provide adequate space for both the Association and Blue Shield. This year the Association completed the repayment of all loans to physicians ($8,700) thus paying off the original building in approximately ten years. Interest paid to physicians during 1971-72 totaled $336.38. The building has had three additions during the past years, all of which were financed by loans from South Dakota Blue Shield, and the remaining indebtedness of the Building Fund stands at $103,-026. 07, as of April 30, 1972. We are presently working on an accelerated schedule of repayment to Blue Shield, and it would appear that the entire building should be debt free in approximately ten years.

Commissions and Committees

All Commissions and most Committees have met at least twice during the year, and a report of their activity is included in the Delegates Handbook. During the year, the Title 19 Committee was reactivated and on one occasion met with the State Welfare Commission to discuss continued liaison between the Medical Association and the Welfare Department. The work carried on by the Commissions and special Committees is in reality the backbone of the Association, and certainly commendation should be given the physicians throughout the state who give of their time and work on the many projects of the Association throughout the year. Both the Grievance Committee and the Utilization and Insurance Review Committee have been busy during the year. I am sure that the physicians serving on those two committees would be more than happy to see their workload cut, and certainly this can be accomplished with a little more effort on the part of the individual physician.

Legislation

The 1972 legislative session found 20 bills in the hopper which related directly to the medical profession in South Dakota. Of these bills, the two directly affecting the Medical School received the most attention. The bill to close our two year school and the bill to create a three year degree granting school both died in committee. However, the approach to a three year school received a great deal of interest and may have laid the groundwork for future legislation. A complete report of all bills is carried in the Legislative Commission's report.

Blue Shield and Governmental Programs

During the calendar year, 1971, Blue Shield processed claims totaling $6,278,000 which includes underwritten business, Medicare and CHAMPUS. Blue Shield's surplus now totals in excess of $1,200,000 and reflects the continued growth of that corporation. During 1971, the State Insurance Commissioner's office audited South Dakota Blue Shield for a three year period and the company received an excellent report. The Commissioner's office was extremely happy with the financial stability of Blue Shield and with the efficiency of the claims processing. The Corporate Body (House of Delegates) will receive a more detailed report from the Blue Shield Handbook.

Journal of Medicine

The financial condition of the Journal of Medicine continues to be a problem, and on a projected basis it would appear that our advertising income will be down to approximately $15,000 for the year. This means that the advertising revenues will be approximately $2,000 less than the previous year, and we project a loss figure for the Journal of $2,500 as of April 30, 1972. Most medical journals throughout the United States are facing the same problem and the question of the viability of state journals is a real consideration. The Executive Secretary would recommend, however, that the Journal be continued in its present form until such time as the Journal could no longer meet its financial obligations. It would appear that the Journal could be operated for the next two or three years utilizing some of the surplus funds created in previous years. Commendation should be given to Dr. VanDemark, the edi-

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tor, and to the Commission on Communication and Liaison for all the work they do throughout the year in the preparation of the Journal.

Summary

All in all, your Executive Secretary feels that the Association has had a most productive year. There have been accomplishments and yet there are many more things to be accomplished. Your executive staff is devoted to the concept of providing as much service as possible to the individual physician, the public and the state. Your organization is and will continue to be beneficial to all South Dakotans. Commendation is a must for the officers and councilors of the organization for these are the men who guide and direct the day to day activities. To President Bartron, a very special thanks for his work during the year. The image of medicine has been his responsibilty for the past year, and he did the job well, as we knew he would do.

Respectfully submitted,
Richard C. Erickson
Executive Secretary

The Committee reviewed the Report of the Executive Secretary and recommends its approval. A special note of commendation is made to the Executive Secretary, Richard C. Erickson, for his fine work and past years of service.

REPORT OF THE FIRST DISTRICT COUNCILOR

April 7, 1971

Program: Arnold S. Leonard, M.D., Associate Professor of Surgery, University of Minnesota, discussed "Surgical Emergencies in the Newborn".

Business: The district society voted to endorse the Drug Abuse Information Committee and donated $200.00 to this cause.

Dr. Muggly, State Association President visited.

May 7, 1971

Program: Film on "Voiding Dysfunction and Urinary Tract Infection" was shown.

Business: The district society voted to contribute $2000.00 to the State Association share of TIP.

September 1, 1971

Business: Charlie Pelton, M.D. of Hoven, South Dakota, was admitted to the Society.

October 6, 1971

Program: Edgar A. Haunz, M.D., Professor from the University of North Dakota discussed "Diagnosis and Treatment of Diabetes Mellitus".

Business: Robert Campbell, M.D., Pathologist of Aberdeen, was admitted to the Society. The Society voted to send a memorial to the University of South Dakota Student Loan Fund in memory of the late Paul Bunker, M.D., who died in September.

November 3, 1971

Program: Lloyd Ralston, M.D., Professor of Internal Medicine at University of North Dakota, discussed "Intravascular Coagulation".

Business: Kennon Broadhurst, M.D., Thoracic Surgeon of Aberdeen, was admitted to the Society.

December 1, 1971

Program: Dr. and Mrs. C. Rodney Stoltz of Watertown, presented a program on "Medicredit".

Business: Henry Shaw, M.D. of Ipswich and Eugene Gibbs, M.D. of Ipswich, were admitted to the Society. The following officers were elected for 1972:

President: K. H. Kosse, M.D.
Vice President: A. Shousha, M.D.
Sec-Treasurer: J. R. Chavier, M.D.

January 5, 1972

Program: Frank Schwab, PhD., discussed "The Northeastern Comprehensive Health Planning Council". Wm. Taylor, M.D., discussed "Drug Abuse".

February 2, 1972

Program: Robert Bartron, M.D., and Henry Parrish, M.D., discussed "Proposed Programs for the Future of South Dakota Medical Education."

March 7, 1972

Program: Peter VanSchoonhoven, M.D. of Phoenix, Arizona, discussed "Hemotherapy and Hemocomponents".

Respectfully submitted,
David Seaman, M. D.
Councilor

The Committee reviewed the Report of the Councilor from the First District Medical Society and recommends its approval.

REPORT OF THE SECOND DISTRICT COUNCILOR

Officers - 1971

President: Dr. Heupel
Vice President: Dr. Brevik
Secretary-Treasurer: Dr. Wrage
Board of Censors: Dr. Larson, Dr. Lillard, Dr. Stoltz
Utilization Committee: Dr. Nelson, Dr. Michieli, Dr. Wrage
Delegates: Dr. Auskaps, Dr. Fedt
Alternate Delegates: Dr. Brevik, Dr. Rud

Officers - 1972

President: Dr. Michieli
Vice President: Dr. Rud
Secretary-Treasurer: Dr. Wrage
Board of Censors: Dr. Nelson, Dr. Larson, Dr. Lillard
Delegates: Dr. Fedt, Dr. Auskaps
Alternate Delegates: Dr. Rud, Dr. Larson
Utilization Committee: Dr. Michieli, Dr. Wrage, Dr. Fedt

During the year since the last State meeting, it should be noted that Dr. E. G. Huppler has been made an honorary member of his District and of the State Medical Association.

Dr. Burke Brewster, after serving the community of Watertown for seventeen years, retired from the active practice of medicine and moved back to Texas.

Dr. B. J. Desai has been welcomed into the community of Watertown, as a second radiologist. He is now an active member of the Second District Medical Society.

During the past year, the Second District cooperated with the Office of Civil Defense and conducted a 22-hour course for emergency medical technicians, "ambulance drivers", which was well attended by drivers throughout the area and successfully completed by 46 individuals.

The State Association was served by the following members of the Second District: Dr. G. R. Bartron as President of the State Association and Dr. J. J. Stransky as alternate delegate to the AMA.

Meetings during the year were as follows:

In April of 1971, a scientific program was presented by Lakeside Laboratories. During that meeting a resolution concerning abortion was revised so as to be submitted to the House of Delegates at the 1971 meeting.

The May meeting saw a program presented by a young lady by the name of Marian Hicks, concerning a program called "HELP" which is a teenage phone service for troubled teenagers. The presentation was well received and the indicated cooperation by the members was great. Several members were nominated for possible appointment to Federal Committees: Dr. H. R. Brown for membership on the Health Insurance Benefits Advisory Council; Dr. E. H. Heinrichs for membership on the Indian Health Advisory Committee; Dr. G. E. Tracy for the National Advisory Committee on Alcoholism.

The September meeting was preceded by a presentation from the Civil Defense Director and State Department of Health concerning the course for emergency medical technicians.

The October meeting was held at Memorial Hospital and was preceded by a presentation by Blue Cross and HEW representatives.

At the November meeting the Second District passed a resolution asking that each member of the District voluntarily place a one year moratorium on prescribing or dispensing amphetamines except in situations where a well-recognized medical indication warranted their use. A short program was presented by Mrs. C. Rodney Stoltz on Medi-Credit, a legislative proposal on National Health Insurance supported by the AMA. Dr. Heinrichs presented the remainder of the program which concerned the heart sound screening program, carried out by the South Dakota Heart Association.

The December meeting was as usual the election of officers. In addition, a short presentation was made by the owner of a new answering service locally.

The January, 1972, meeting was preceded by a scientific presentation by Lakeside Laboratories.

At the February meeting, the District was happy to receive the President of the State Medical Association,

Dr. Bartron, and Mr. Johnson from the State Office.

The March meeting saw a program presented by the States Attorney and another lawyer from the community, as well as a representative from the Department of Public Welfare concerning child abuse or the battered child problem. It was during this meeting that a resolution concerning medical education was passed which will be submitted to the State Medical Association at its May meeting.

Respectfully submitted,
Gerald E. Tracy, M.D.
Councilor
Second District Medical Society

The Committee reviewed the report of the Councilor for the Second District Medical Society and recommends its approval.

REPORT OF THE THIRD DISTRICT COUNCILOR

Regular meetings of the Third District Medical Society of the South Dakota State Medical Association have been held every two months since the last report of the Councilor.

The May, 1971, meeting was held in Arlington and the resolutions for the state association meeting were discussed and the delegates instructed concerning them. The Tax Information Program was also discussed as well as the medical foundation concept by our state president, Dr. Muggly.

At the July, 1971, meeting in Madison, Dr. Richard E. Gunnarson of Sioux Falls presented the scientific program concerning common and difficult ENT problems.

Dr. Robert Bartron, President of SDSMA, spoke at the September meeting held in Volga. Current problems in medical education in South Dakota was his subject, and in addition numerous other topics of concern were covered during this visitation meeting of the state president.

In December, the Third District met at the Flandreau Indian School Tea Room. The following new officers were elected: President, Dr. F. X. McCabe; Vice President, Dr. W. Klar; Secretary-Treasurer, Dr. Calvin Kershner; Censors, Drs. C. S. Roberts, R. G. Belatti, and H. Stensrud.

The February meeting of the Third District Society was held in Brookings, and Dr. John A. Lowe, Director of the S. D. Regional Medical Programs, presented an informal introductory orientation to S. D. Regional Medical Programs. Nominees for Councilor were elected and forwarded to the state Association office: Drs. B. C. Lushbough, R. G. Belatti, and W. Klar. Dr. Donald Scheller was nominated as the Third District representative for the Nominating Committee to serve at the State annual meeting in May. The Third District Delegates are Drs. Scheller and Belatti and alternates are Drs. Wold and Klar.

Respectfully submitted,
Bruce Lushbough, M.D.
Councilor
Third District Medical Society

The Committee reviewed the report of the Councilor for the Third District Medical Society and recommends approval of this report.

REPORT OF THE FOURTH DISTRICT COUNCILOR

The Fourth District Medical Society met on January 4, 1972. At that time, election of officers was held. The following officers were elected:

President, B. O. Lindbloom, M.D.
Vice President, R. J. Zakahi, M.D.
Secretary-Treasurer, J. T. Cowan, M.D.
Censor - 3 yrs., L. C. Askwig, M.D.
Delegate, Barbara K. Spears, M.D.
Alternate Delegate, A. J. Tieszen, M.D.

Named to the Utilization Review Committee were L. C. Askwig, M.D.; R. J. Zakahi, M.D.; and A. J. Tieszen, M.D. Diabetes Determination Committee: R. C. Jahraus, M.D., and Councilor, C. L. Swanson, M.D.

Richard C. Erickson, Dr. Robert Bartron and Robert Johnson were present at this meeting. A discussion in regards the degree granting medical school was held. Many opinions of a varied nature were voiced. It proved to be a highly interesting discussion; since no definite action on any other matters could be or would

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be taken by this District at that time, the meeting was adjourned.

Respectfully submitted,
C. L. Swanson, M.D.
Councilor
Fourth District Medical Society

The Committee reviewed the report of the Councilor of the Fourth District Medical Society and recommends approval of this report.

REPORT OF THE FIFTH DISTRICT COUNCILOR

Since the last report from the Councilor of this District, the Huron District Medical Society met on October 13, 1971. At this time, there was the annual visit of the State President, Dr. Robert Bartron of Watertown; and also accompanying him was Mr. Richard Erickson, Executive Secretary.

Dr. Bartron discussed the education of future doctors in South Dakota, and following this, Mr. Erickson gave a few remarks about the Hardin Report.

The next meeting was December 1, 1971, at which time Dr. Paul Hohm gave a report concerning the Central South Dakota Area-wide Health Council.

This was followed by election of officers for 1972 for the Fifth District, which were as follows:

President, Clifford Gryte, M.D.
Vice President, Louis Karlen, M.D.
Sec.-Treas., Emil Hofer, M.D.

At the time of the writing of this report, the next meeting will be on March 6, 1972, at which time plans for the forthcoming State Convention will be discussed.

Respectfully submitted,
F. D. Leigh, M.D.
Councilor
Fifth District Medical Society

The Committe reviewed the report of the Councilor from the Fifth District Medical Society and recommends approval of this report.

REPORT OF SIXTH DISTRICT COUNCILOR

The Sixth District Medical Society had four meetings during 1971. They were called on April 23, June 24, November 3, and December 15, of 1971. The meetings were all a combination of business and program meetings. In summary, the programs were inclusive of guest speakers, Dr. Hayes and Dr. Lowe, who were present in April, 1971. Dr. Hayes spoke on his plan for a core curriculum for the medical and its allied sciences in the state of South Dakota. Dr. Lowe discussed communicable diseases as they pertain to the general practitioner in South Dakota, and in particular, the present status of tuberculosis treatment. He also discussed the new legislation for mandatory vaccination, which would be effective this coming year. One meeting was devoted to a film which described the total hip Arthroplasty Operation of Sbarbaro, and at this meeting, there was no business meeting.

In November, the meeting consisted of a visit by the President of the Association, Dr. Bartron, and Mr. Erickson, the Executive Secretary. Dr. Bartron explained the proposed three year medical school, and answered questions of members of the Sixth District. Mr. Erickson explained fully the Tax Information Program, and how contributions could be made to it.

The December program was primarily a business program which included the election of new officers. Officers elected for the coming year were: Dr. John O. Judge, President; Dr. Ralph R. Erdman, Vice President; Dr. James L. Vose, Secretary-Treasurer; Dr. Richard G. Gere and Dr. Judson O. Mabee, Delegates. Alternates elected were Dr. Charles M. Loos and Dr. Charles Monson.

At this meeting, a motion was passed that Dr. J. H. Lloyd and Dr. F. Tobin be submitted as honorary life members to the State Medical Society for approval. This was carried unanimously.

Respectfully submitted,
H. R. Lewis, M.D.
Councilor
Sixth District Medical Society

The Committee reviewed the report of the Councilor for the Sixth District Medical Society and recommends the approval of this report.

REPORT OF SEVENTH DISTRICT COUNCILOR

The author assumed the unexpired term of Dr. Erwin T. Lietzke, deceased, in the fall of 1971.

Monthly meetings of the Seventh District began in September, 1971. Dr. Robert Bartron addressed the Society at that meeting and a lively discussion regarding a degree granting medical school ensued. Dr. Donald Frost reported on the local Drug Education Committee activities and revealed that the city of Sioux Falls has received a two year grant of $83,000 per year for the establishment of a drop-in center. At the same meeting, the Seventh District voted a voluntary one year moratorium on all amphetamine prescriptions by members of the Seventh District, excepting those necessary for therapy and well recognized medical entities.

The October meeting was held at Canton, South Dakota, hosted by Dr. Ted Angelos and an excellent pheasant dinner was provided. An educational program by the State Department of Health was presented on venereal disease control, current aspects.

The November meeting was a joint meeting with the wives and no business activities were conducted.

At the December meeting, the phonocardioscan tracing of all school children, as sponsored by the South Dakota Heart Association, was discussed. No action was taken regarding a mandatory program. An interim report was given on the family practice residency program for the Sioux Falls area. A target date of July, 1975 is envisioned by this committee and plans are underway to implement this program. It was agreed that a semi-annual forum to discuss the problems and progress of the medical education committee be established.

At the January meeting, a committee was appointed to formulate any resolutions to the Annual State Association meeting regarding AMA, state and local reorganizational changes to make the Medical Societies a more democratic and representative body. The continued excellent reports of the local Utilization and Review Committee was commended. The subject of osteopathic membership in the Seventh District was discussed at length but no action was taken by the Seventh District to change our by-laws, which at present do not allow for the admission of osteopathic physicians into the Seventh District.

A special meeting was held January 27, 1972, at which time Dr. Skip Gay, chief of the Heroin Detoxification Center, Haight Ashbury Free Clinic, San Francisco, California, gave a very informative lecture regarding current aspects on the drug scene.

At the March meeting, a special program was conducted on the degree granting medical school and its current state of progress. The participants of this discussion were Drs. Parrish and Hayes and Mr. Lauren Lewis of the State Board of Regents.

Respectfully submitted,
Bernard J. Begley, M.D.
Councilor
Seventh District Medical Society

The Committee reviewed the report of the Councilor from the Seventh District Medical Society and recommends the approval of this report.

REPORT OF THE EIGHTH DISTRICT COUNCILOR

A meeting was held on September 20, 1971, at the Prairie in Vermillion. Dr. Bartron, State Association president, made his official visitation and spoke to the society on a number of important subjects including the medical school, the Tax Information Program and state licensure. Dr. Henry Parrish was admitted to society membership. A donation to TIP was voted by the society. A resolution concerning the use of amphetamines was adopted at this meeting.

The second meeting was held on December 9, at Yankton State Hospital. A discussion was held concerning the proposed three year degree granting medical school.

The third meeting was held on March 2, at the Black Steer in Yankton. Dr. Honke reported on the meeting of the Commission on Legislation and Governmental Relations. An invitation was received from the 7th District Medical Society to attend a meeting where the medical school would be discussed. Our delegates to the State meeting were named to attend this meeting. Pre-

liminary plans for a one-day symposium on Pulmonary Care were discussed. Officers were elected as follows: President, Richard Porter, M.D.; Vice President, K. A. Muckala, M.D.; Secretary, C. R. Herbranson, M.D.; Treasurer, James Jackson, M.D.

A fourth meeting will be held in late April to instruct our delegates to the annual meeting.

Respectfully submitted,
Duane B. Reaney, M.D.
Councilor
Eighth District Medical Society

The Committee reviewed the report of the Councilor from the Eighth District Medical Society and recommends acceptance of this report.

REPORT OF THE NINTH DISTRICT COUNCILOR

In traditional fashion, the Black Hills District Medical Society held meetings in February, April, May, August, October and December of 1971; all meetings being held at Arrowhead Country Club inasmuch as for the first time in many years, the physicians at Ellsworth Air Force Base elected not to sponsor a meeting during the year 1971.

A considerable proportion of each meeting involved discussions in depth inasmuch as outside guest speakers spoke to the Society during the year on, "Renal Dialysis", "Use of Radioactive Isotopes", "The Thoracic Outlet Syndrome", and "Clinical Aspects of Depression".

Portions of other meetings seemed to be somewhat circular as evidenced by the April and May meetings in which Resolutions were introduced to be brought up at the State Medical meeting, followed by the October meeting during which time the reason for the Resolutions not passing was explained. Also a considerable amount of time was spent during the year regarding the Society's contribution to the Tax Information Program and trying to find out the reasons why this specific program had not been vigorously supported by the Black Hills District.

Other items discussed during the year were the establishment of an Oncology Clinic at St. John's Hospital, Life memberships for Drs. Clark, Davidson and Saxton, the matter of Amphetamine prescriptions, considerable discussion on Medical-Legal matters, and preliminary investigation by the State Society into Medical Foundations.

Officers for the following year were elected as follows: Dr. Russell Harris, President; Dr. L. E. Carson, Vice President; and Dr. Joseph Kovarik, Secretary-Treasurer.

All in all, an essentially uneventful year, but considerable trepidation expressed by many members over forthcoming events which seem to be casting their shadows.

Respectfully submitted,
E. T. Ruud, M.D.
Councilor
Ninth District Medical Society

The Committee reviewed the report of the Councilor from the Ninth District Medical Society and recommends the approval of this report.

REPORT OF THE TENTH DISTRICT COUNCILOR

I attended all Council meetings except March 25th, which I missed because of illness. Our district lost another doctor this past year, David Studenberg of Gregory, but K. K. Verma, M.D., has moved into Gregory to fill the deficit of doctors. We hold only one meeting a year—just prior to the annual state meeting. This paucity of meetings is because of only five doctors in our area and the difficulty of getting everyone together.

Our greatest topic of conversation and greatest need in medicine today are more doctors to become involved in rural medical care.

Respectfully submitted,
M. R. Cosand, M.D.
Councilor
Rosebud District Medical Society

The Committee reviewed the report of the Councilor from the Tenth District Medical Society and recommends the approval of this report.

REPORT OF ELEVENTH DISTRICT COUNCILOR

Our District has had formal monthly meetings throughout the year. We had a visitation of the State Medical Association president who explored and stated the medical problems and particularly the ideas and problems concerning the medical school.

It has been our policy in the past year to have a visiting M.D. come in monthly to discuss our medical problems of mutual interest and also to give a lecture on some medical topic. We also have informal monthly meetings again where medical review of selected topics are discussed and also to review problems relating to Medicare and the hospital.

The Northwest District does not have any resolutions that it wants to be brought forth to the Council or the state meeting this year.

Respectfully submitted,
James E. Ryan, M.D.
Councilor, Northwest
District Medical Society

The Committee reviewed the report of the Councilor from the Eleventh District Medical Society and recommends its approval.

REPORT OF TWELFTH DISTRICT COUNCILOR

The Whetstone Valley District Medical Society had three meetings:

1) At Rosholt, the President of the State Medical Association attended and discussed the problems facing the private practitioner of medicine today. He encouraged active participation of physicians in politics in order that physicians may have some hand in shaping their destiny.

2) At the meeting in Milbank, we had a professional program on steroids—their newer indications and uses.

3) At Webster, we had a professional program on medical depression.

The major problem of the Whetstone Valley District Medical Society continues to be a shortage of physicians.

Respectfully submitted,
Eldon E. Bell, M.D.
Councilor, Whetstone Valley
District Medical Society

The Committee reviewed the report of the Councilor from the Twelfth District Medical Society and recommends its approval.

REPORT OF THE COMMISSION ON MEDICAL SERVICE

The Commission on Medical Services held two regular meetings this past year. At the first of these on August 28, 1971, the Commission met with Dr. Henry Parrish and reviewed the Hardin Report and also Dr. Parrish's recommendations and views concerning the Hardin Report. At that time it was recommended that all new Allied Health Programs in the state be under the direction of the University of South Dakota. It was recommended that the Vice President in charge of Health Affairs be used by the Board of Regents for consultation as needed. The Commission also recommended that the State Association endorse the principle of the three year degree granting Medical School Program and it was also recommended that the first year medical class be increased to 64 students. The Commission discussed at length the possibility of establishing a Relative Value Unit for medical and legal testimony and it was ultimately recommended that a fee of $50 to $100 per hour be charged by physicians for medical and legal testimony to include not only the time in court but also the times spent in writing and researching reports and pre-trial hearings. The proposed changes in the medical licensure regulations were reviewed and recommended that they be approved.

The most recent meeting was held on February 26, 1972, with a rather meager attendance. A suggestion concerning establishment of Medical Audit Conferences in South Dakota for the purpose of settling some standards for Medical Review and Audit was carefully reviewed and the executive office at the present time is investigating the possibility of Medical Audit Conferences and also what other states are doing to establish uniform auditing standards. The problems in keeping the present Relative Value Scale coding terminology up to date were discussed and two members of the

commission will serve in an advisory capacity to help code new procedures as necessary. Recommendations were made that the full tuition scholarships for a freshman and a sophomore student at the University School of Medicine be continued. Also, it was recommended that we help with financial assistance for the SAMA delegate to their annual meeting.

A discussion was held concerning the extreme difficulty being experienced in obtaining cadavers for the Medical School. The executive secretary has subsequently had correspondence with Dr. Behan and the problems involved in obtaining cadavers from the State Hospital at Yankton. Apparently, there is no easy or ready solution to this problem and it would be the chairman's recommendation that the Council and the executive office in cooperation with the Medical School help undertake some type of educational program in the state in an attempt to alleviate the problems for the Medical School.

Respectfully submitted,
B. C. Gerber, M.D., Chairman
Commission on Medical Service
G. E. Tracy, M.D.
Roland F. Hubner, M.D.
Judson O. Mabee, M.D.
Dale Berkebile, M.D.
James A. Rud, M.D.
W. B. Odland, M.D.
Warren Jones, M.D.
T. H. Sattler, M.D.
George Wood, M.D.

The Reference Committee considered the report of the Commission on Medical Service. The Reference Committee recommended that the report be accepted.

REPORT OF THE COMMISSION ON COMMUNICATIONS AND LIAISON WITH ALLIED ORGANIZATIONS

The following items were accomplished by the Commission on Communications and Liaison during the past year.

1. The medical-legal symposium held on September 18, was set up and programmed by members of the committee. Dr. Richard Lillehei from the University of Minnesota was the guest speaker. There was less attendance by both physicians and lawyers at this meeting. For this reason no further medical-legal symposia are to be planned in the near future. It was felt by members of the commission that the symposium was a very worthwhile program but it should only be held every few years.

2. The commission urged physicians to make personal contact through radio, T.V., and newspapers asking to publicize information on veneral disease as a public health service. This was done in conjunction with community health week.

3. There was discussion with Mrs. Olga Ulberg and Mr. Clayton Mullen of the State Nursing Home Association. The discussion concerned three levels of care—intermediate care, nursing care, and intensive care in nursing homes. The State had implemented a placement team to determine which type of care the patient required. There is also a requirement by the State as to reviewing the patient's records. Because of the import of this issue, it was recommended that the Council discuss these problems. The commission directed the executive office to inform the liaison committee of the welfare commission of these problems.

4. In regard to the self-interview form provided by the State Health Department for reporting venereal disease, it was recommended that this form be used.

5. The commission noted the establishment of an AMA Department of Health Manpower.

6. The commission was informed of the meeting attended by Bob Johnson and Dr. Barlow with Mr. William Hoffman, Jr., of the AMA Department of Medicine and Religion. The commission recommended that the executive office notify each district secretary about AMA information and material regarding medicine and religion. It was felt that meetings on medicine and religion are best held at the district level.

7. The commission reviewed the legislative activities concerning allied health professions.

8. The commission discussed the bill proposing the 3-year degree granting medical school. There was a recommendation that there be more planning and discussion as to the future of medical education in South Dakota. The matter of the medical school was discussed because of the marked public interest that was aroused before Dr. Knabe resigned.

9. Mr. Bob Johnson reported that three copies of two pamphlets published by the AMA regarding national health insurance were sent to the doctors to enable them to answer questions asked by their patients.

Respectfully submitted,
John F. Barlow, M.D., Chairman
Commission on Communications
Mary E. Sanders, M.D.
L. H. Amundson, M.D.
William Hanson, M.D.
R. G. Belatti, M.D.
H. J. Stensrud, M.D.
D. L. Scheller, M.D.
H. H. Theissen, M.D.
R. Auskaps, M.D.
Eldon Bell, M.D.
A. Tieszen, M.D.
R. VanDemark, M.D.

The Reference Committee considered the report of the Commission on Communications and Liaison. The Committee recommended that the report be accepted.

REPORT OF THE COMMISSION ON SCIENTIFIC MEDICINE

A yearly task of the Commission on Scientific Medicine is the preparation of the scientific program for the annual meeting of the South Dakota State Medical Association. It is extremely difficult to offer something for everybody, but in view of the ever increasing drug problem in South Dakota, it was thought to be appropriate to put emphasis on this matter. After a didactic lecture a generous discussion period is provided for, in which other psychiatric problems of general interest will also be discussed. In the morning clinical subjects will be presented and the program will be concluded with a presentation on the issue of our Medical School. A questionnaire to inquire about the future of the scientific program was developed.

It was of great interest to this Commission to keep a close liaison to the State Health Department and to advise its Divisions on medical matters. Without a doubt the harmony between this Society and the State Health Department is presently on an all time high. This was reflected in the fact that this Commission had two telephone conferences upon request of the State Health Department (July 1, 1971 and January 10, 1972) in order to promulgate "Guidelines regarding School Employee Tuberculin Testing" and "Suggested Changes for the Treatment of Tuberculosis." This Commission was also asked on its opinion of routine vaccination against smallpox, the change of the compulsory smallpox vaccination law, the technique of the PKU testing in newborns and made recommendations regarding vaccination schedules.

The Commission expressed further its grave concern about the formation of treatment centers for alcoholics (including detoxification programs) without adequate medical supervision. A similar situation seems to develop in the area of drug abuse, where programs are taken over by lay people without sufficient involvement of physicians. Specific recommendations on both subjects were directed to the Council. Two members of this Commission will attend the AMA Conference on "Drug Abuse and the Medical Society" (April 13 - 15, 1972).

Since one and one-half years the Commission on Scientific Medicine has studied the problem of continuing post-graduate education for physicians and has now prepared a synopsis with options for the perusal of the Council. It appears certain that this important problem will occupy the membership of this Society for some time. Two members of the Commission will attend the AMA Conference on Continuing Education (October 24 - 26, 1972).

As the Chairman, I wish to express my gratitude

(Continued on Page 31.)

(Continued from Page 26)

for the cooperation I have received from the members of the Commission on Scientific Medicine.

Respectfully submitted,
E. H. Heinrich, M.D., Chairman
E. A. Schabauer, M.D.
W. J. Kovarik, M.D.
R. R. Thornton, M.D.
Theodore Angelos, M.D.
James C. Larson, M.D.
H. Phil Gross, M.D.
C. C. Lardinois, M.D.
H. S. Shining, M.D.
N. B. Saoi, M.D.
R. B. Leander, M.D.
R. J. Zakahi, M.D.
Mr. Bruce Richardson, student representative

The Reference Committee considered the Report of the Commission on Scientific Medicine and suggests that the Medical Association support the concern expressed about the Drug Education Program and support the efforts presently undertaken by the Medical Association to get a Leadership Conference on Drug Education Programs under way in South Dakota to group the Drug Education Programs which exist in the State. Attention is also called to the fact that later this year there will be a report available on a continuing medical education program in South Dakota. It is suggested that this plan be carefully studied and educational effort made toward the physicians in the state who understand the rationale behind this medical education program. It is stressed that this would be a voluntary program. The Reference Committee recommends the acceptance of this report with special attention to the above factors.

REPORT OF THE COMMISSION ON INTERNAL AFFAIRS

The Commission on Internal Affairs met on August 28 and February 26.

The following members of the medical profession in South Dakota have died since the last annual meeting:

E. T. Lietzk, M.D., Beresford, died May, 1971.
G. W. Mills, M.D., Wall, died September, 1971.
Paul G. Bunker, M.D., Aberdeen, died Sept., 1971.
D. Max Reade, M.D., Yankton, died October, 1971.
Goldie Zimmer, M.D., Missoula, Montana, died October, 1971.

Following is the report of the Health Careers Loan Fund Program for the past year.

Balance in Bank March 1, 1971		$13,636.21
Income		
Interest	$ 822.51	
Loan Repayments	879.00	
Total Income	$ 1,701.51	1,701.51
		$15,337.72
Expenditures		
10 Loans	$ 4,800.00	4,800.00
Balance in Bank March 1, 1972		$10,537.72

The Commission recommended to the Council that inasmuch as the fund has $11,000 in a regular savings account, that $5,000 be used to purchase a one year certificate of deposit and that $2,000 be used to purchase a three month renewable certificate of deposit in order to obtain better interest income. This recommendation was approved by the Council.

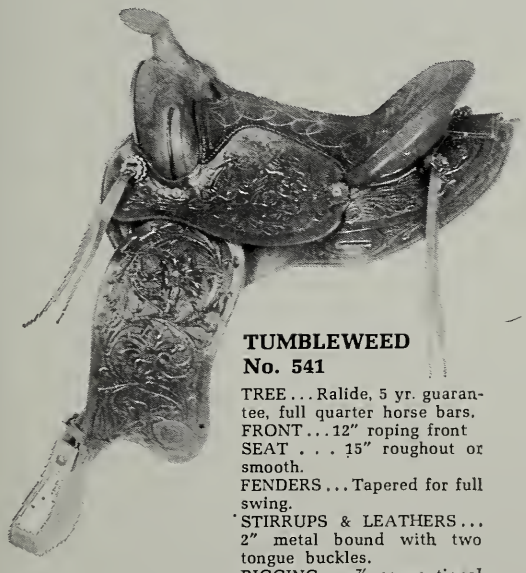
The Commission considered charging physicians in the Association Blue Shield - Blue Cross group a service charge for billing which could be used to supplement the Association's income. This proposal was tabled.

The Commission considered group travel plans submitted by Nervig Travel Agency, but decided the Association should not sponsor such tours at the present time.

The proposed budget for 1972-1973 printed as follows was approved by the Budget and Audit Committee, the Commission and the Council.

Respectfully submitted,
E. A. Rudolph, M.D., Chairman
B. J. Begley, M.D.

NEW SUMMERTIME SPECIALS



TUMBLEWEED
No. 541

TREE . . . Ralide, 5 yr. guarantee, full quarter horse bars.
FRONT . . . 12" roping front
SEAT . . . 15" roughout or smooth.
FENDERS . . . Tapered for full swing.
STIRRUPS & LEATHERS . . . 2" metal bound with two tongue buckles.
RIGGING . . . 7/8 conventional with heavy aluminum dees.
FINISH . . . Hand rubbed oil finish.
WEIGHT . . . Approximately 22 lbs.

The livin' is easy, so are the prices on these two great saddles Big Horn is offering. Check the specs on the one you want then get on down to your dealer. You'll see even more than you expect . . . even from Big Horn!

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DIVISION OF OUTDOOR SPORTS INDUSTRIES
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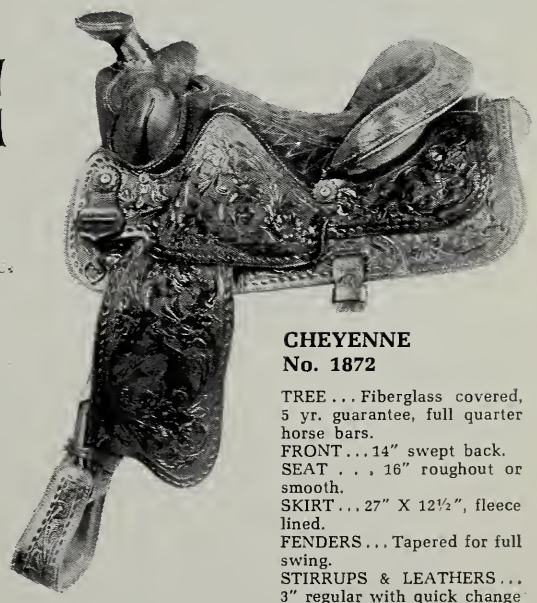
700 WELLINGTON AVE., WINDSOR, ONTARIO



CHEYENNE
No. 1872

TREE . . . Fiberglass covered, 5 yr. guarantee, full quarter horse bars.
FRONT . . . 14" swept back.
SEAT . . . 16" roughout or smooth.
SKIRT . . . 27" X 12½", fleece lined.
FENDERS . . . Tapered for full swing.
STIRRUPS & LEATHERS . . . 3" regular with quick change buckles.
RIGGING . . . In skirt, 7/8 Powder River Plate
FINISH . . . Hand rubbed oil finish.
WEIGHT . . . Approximately 38 lbs.

C. S. Roberts, M.D.
K. A. Muckala, M.D.
S. M. Doubrava, M.D.
E. J. Perry, M.D.
E. A. Pasek, M.D.
C. R. Stoltz, M.D.
Alfred Shousha, M.D.
R. R. Giebink, M.D.
B. T. Lenz, M.D.
James Shaeffer, M.D.
Mr. Bruce Vogt, student representative

The Reference Committee recommends the acceptance of the Report of the Commission on Internal Affairs.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Item	Income Budgeted 1972-73
State Dues	$57,000.00
Annual Meeting	9,200.00
Refunds & Misc.	2,080.00
Interest	100.00
Car Reimbursement	200.00
Income Administrative	1,140.00
	$69,720.00

Item	Expenses Budgeted 1972-73
Salary, Executive	$ 9,600.00
Salary, Other	12,600.00
Social Security	1,050.00
Legal & Audit	3,500.00
Telephone & Telegraph	2,000.00
Office Supplies	2,500.00
Dues & Subscriptions	900.00
Physician Travel	4,000.00
Annual Meeting	8,000.00
Public Relations	4,500.00
Rent	3,000.00
Miscellaneous	100.00
Postage	3,000.00
Legislative Expense	2,300.00
Medical School End.	200.00
Car Expense	1,200.00
Clinical Pathology	200.00
Staff Travel	4,500.00
Insurance	300.00
Employment Tax	50.00
Employee Relations	3,400.00
Taxes	200.00
Auxiliary Newsletter	700.00
	$67,800.00
Reserve	1,920.00
	$69,720.00

SOUTH DAKOTA JOURNAL OF MEDICINE

Item	Income Budgeted 1972-73
Advertising	$18,000.00
Subscriptions	500.00
Miscellaneous	500.00
Refunds	800.00
	$19,900.00

Item	Expenses Budgeted 1972-73
Salary, Editor	$ 720.00
Salary, Staff	4,020.00
Legal & Audit	100.00
Rent	600.00
Telephone & Telegraph	150.00
Social Security	100.00
Office Supplies	13,460.00
Postage	750.00
Travel	
	$19,900.00

Building Fund

Item	Income Budgeted 1972-73
Blue Shield Rent	$36,360.00
Association Rent	3,000.00
Journal Rent	600.00
Board of Exam. Rent	600.00
Misc. Income	
	$40,560.00

Item	Expenses Budgeted 1972-73
Salaries, Staff & Janitor	$ 6,000.00
Repair, Improvement & Supplies	4,000.00
Utilities	6,000.00
Interest	4,400.00
Repayment of Loans	11,900.00
Legal & Audit	700.00
Taxes & Insurance	5,900.00
	$38,900.00
Reserve	1,660.00
	$40,560.00

The Committee reviewed the proposed budget and recommended that it be approved.

REPORT OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS

There were two formal meetings of the Commission, the minutes of which are attached herewith.

Despite the fact that we went into the 1972 session of the S.D. Legislature without any strong commitments, there was much activity at Pierre relevant to the SDSMA, especially the issue of the degree granting program for the School of Medicine at the USD. The staff of the SDSMA are to be commended strongly for their most effective lobbying. It was through no fault of their lobbying efforts that the Medical School issue did not come to a successful conclusion.

Activities in which members of this Commission have been involved during the past year include:

1) A special meeting to study the licensure laws in South Dakota was attended 8-18-71. Under the law which became effective July 1, 1971, concerning waiver of examination in the basic sciences, much of the objection to the older law was removed. Recertification of physicians was recommended for further study. Minor alterations in the regulations relating to the basic sciences were suggested.

2) This Commission was represented at and a report of the legislative activities in this state were presented to the North Central Medical Conference held in St. Paul, Minnesota, October 31, 1971.

3) The Chairman of the Commission and others met with the S.D. Nurses' Association and the S.D. LPN Association in Sioux Falls on November 17, 1971, to help these associations formulate their plans for the 1972 session of the S.D. Legislature. Widening of the scope of practice of both groups under supervision of the physicians was advised.

4) This Commission has been represented at each meeting of the Council of the SDSMA.

5) The Commission Chairman attended a portion of the 1972 S.D. Legislative session.

6) An editorial will appear in the March 1972 issue of the Journal of the SDSMA concerning the Industrial Safety and Health Act of 1970 to warn the S.D. physicians of its ramifications. Attention is also directed to an article concerning this subject which appeared in the JAMA, Volume 219:905-907, February 4, 1972.

Matters to which this association should address itself in the coming year include the following:

1) PKU testing of newborn infants. Possibly there will be legislation introduced into the 1973 S.D. Legislature to enforce **mandatory** PKU testing by M.D.'s. This will need considered study because laws making certain procedures **mandatory** have potential dangers to the practicing physician.

2) Education of medical students for South Dakota,

whether by a degree granting program in this state or by other means, will need much attention from the SDSMA and the physicians as individuals. The physicians of this state must be polled concerning their ideas about the matter, their willingness to participate in the teaching programs and their support of the present and future medical school. Without the active support and backing of a significant majority of the physicians in this state, this Commission and the SDSMA cannot go to the next session of the Legislature with any hope of assisting to establish the concept of the degree granting program at the medical school or obtaining funds for this program. It is important to the S.D. Legislators that this project have the active backing of the physicians of this state.

3) Legislation to change S.D. abortion laws may be introduced in 1973, requiring actions by the SDSMA.

4) Recertification of physicians may require some action depending upon developments on a national level.

5) Possible broadening of health care programs on a national level.

MINUTES OF THE MEETING OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS
10:00 a.m., Saturday, August 28, 1971

Members present were Doctors Gere, Honke, Ryan, Foley, Hayes, Church, Lillard and Gregg. Also in attendance were Doctors Bartron, Rost, Muggly and Perry. Mssrs. R. C. Erickson, R. Johnson and Richard Culbert also were present.

Business

1. **Podiatry Law revision.** It was M/S/P (Hayes/Gere) that the SDSMA not oppose South Dakota SB 242 as amended which will be reintroduced at the next legislative session by the podiatrists.

> Section 1. That SDCL 36-8-1 be amended to read as follows: Podiatry is hereby defined as the medical, surgical or mechanical treatment of the human foot. A podiatrist shall not be authorized to amputate the human foot, a toe or toes, or remove all of any bone other than those bones in the toes; or perform any surgery on the human body at or above the ankle, or administer anesthetics other than local anesthetics.

2. **The law concerning emergency medical services** similar to that proposed in Utah was discussed. It was the concensus of the Commission that the things which would be done by this law are now already in effect in South Dakota and we do not really need such a law. The matter was tabled by the Commission.

3. **Physician licensure law resolution** from the Seventh District Society and report of the special committee meeting on 8-18-71 were read to the Commission. No action by this Commission is needed at the present time.

4. **Relicensing or recertification of physicians' competence** was discussed. In view of the fact that this subject is receiving considerable analysis on a national level, it was the feeling that until the exact status of the situation has been clarified this Commission and the SDSMA should take no action.

5. **Noise Pollution Control Act** as recently passed in North Dakota was discussed. Dr. Hayes informed the Commission that the Williams Steiger Law passed by the 91st Congress of the U.S. provides for noise regulation on a national level. (National Safety and Health Act of 1970) When implemented this act should do much to relieve the noise pollution problem. No action was taken by the Commission.

6. **Medical School budget** support by the SDSMA. It was moved, seconded and passed (Foley/Ryan) that the SDSMA support the proposed budget of $1,200,000 for the Medical School of the University of South Dakota.

7. **Tax legislation.** It was moved, seconded and passed (Ryan/Gere) that the SDSMA await the report of the TIP tax study report before taking any stand upon this matter.

8. **Abortion legislation.** It was moved, seconded and passed (Gere/Foley) that the SDSMA reaffirm its previous stand concerning this matter.

9. **Change in the Nurse Practice Act.** Dr. Hayes and Mr. Erickson reported on a meeting last week at which changes in the Nurse Practice Act to be introduced into the next session of the legislature were discussed. The Commission felt that the proposed changes as outlined by Dr. Hayes were appropriate and should be endorsed by the Association.

10. **Health Professions Loan Fund.** It was the concensus of the Commission that the SDSMA should support the proposed figure made by the Board of Regents.

11. **Hearing Aid Licensing Law** changes. Dr. Gregg announced to the Commission that it is possible that the Hearing Aid Dealers Association may introduce legislation to modify their licensing law, patterned upon a law recently passed in California. It was recommended that the SDSMA should keep abreast of the legislation and if there is any question, the Committee for the Conservation of Hearing of the South Dakota Academy of Ophthalmology and Otolaryngology should be consulted as to the position of this Association in the matter.

12. It was moved, seconded and passed (Hayes/Lillard) that the Commission request that the Council of the SDSMA empower Mssrs. R. C. Erickson and R. Johnson, and Dr. Gregg to act for the Association at the next meeting of the S.D. legislature in 1972. In matters of serious concern to the Association the members of the Commission will be polled before definitive action is taken.

13. **Rising cost of malpractice insurance.** Mr. Richard Culbert of Sioux Falls who is an agent for the St. Paul Fire and Marine Insurance Company, one of the companies supplying the majority of malpractice coverage in South Dakota, reported upon the present status of malpractice insurance coverage in this state. It was noted that last year the income to the company from premiums was about $140,000 while the outflow of capital to pay the cost of settlements of lawsuits filed in this state was about $230,000. Although it has been requested that all litigation be reported to the SDSMA, most of the lawsuits have been settled out of court. It was also brought out that one of the major factors precipitating litigation in this area has been injudicious remarks made by a physician concerning the care of a patient by another physician. It was the concensus of the Commission that the matter of malpractice problems must be kept in constant awareness by all physicians, and measures taken by each M.D. to avoid the circumstances which lead to such problems. A pamphlet put out by the insurance company was circulated through the Commission, and it was the opinion of the Commission that this leaflet should be made available to each physician in South Dakota.

There being no further business the meeting was adjourned at 12:30.

MINUTES OF THE MEETING OF THE COMMISSION ON LEGISLATION AND GOVERNMENTAL RELATIONS
10:00 a.m., Saturday, February 26, 1972

Members present: Doctors Gere, Foley, Honke, Hayes and Gregg. Medical Student Representative - Mr. Charles Lord. Also present - Mr. R. C. Erickson and Dr. L. Amundson. Excused - Dr. Lillard.

Business

I. Legislative Review for 1972

A. Sponsored Bills

1. HB 778 - Health Professions Loan Fund appropriation - $305,000 - **Final Passage**
2. HB 779 - Health Professions Loan Act - amends to allow a loan of up to $3,000 per year - **Final Passage**

B. Endorse Bills

1. HB 790 - Annual renewal fee for basic science from $10 to $20 - **Final Passage**
2. HB 848 - Creates three year medical school and appropriates $500,000 for transition. State Affairs Committee - **Do Pass.** Appropriation Committee - **No Action** - Died in Committee.
3. SB 1 - Establishes pilot nurse physicians assistant program directed by State Health Department and Health Advisory Committee for four counties - $200,000 appropriation - **Final Passage**

4. SB 115 - Amends Nurse Practice Act to allow R.N. to perform certain duties and services delegated by the M.D. or hospital medical staff- **Final Passage**
5. SB 164 - Provides immunity from liability for persons engaged in transplants, blood transfusions, etc., except for negligence - **Died in Committee**
6. SB 223 - Eliminates smallpox immunization as prerequisite to entering school - **Final Passage**

C. Bills of Interest
1. HB 542 & 562 - Prohibits Board of Pharmacy from restricting advertising of drug prices by pharmacies - **Killed in Committee**
2. HB 596 - Corrects uncertain wording in Podiatry Act - **Final Passage**
3. HB 636 - Re-enacts Physical Therapy Licensing Law. Redefines practice, licensing procedures and raises licensing fees - **Final Passage**
4. SB 18 - Placement of non-dentist on State Board of Dentistry - **Killed in Committee**
5. SB 101 - Removes the $75,000 surgical - medical limit under workman's compensation and allows patient's selection of M.D. - **Killed in Committee**
6. SB 184 - Requires Certificate of Need for new construction or expansion of medical facility (hospital) if cost is $50,000 or more - **Final Passage**
7. SB 200 - Increases size of all professional licensing boards and requires Governor to appoint a non-professional to each board - **Killed in Committee**
8. SB 213 - Amends Health Professions Loan Act to allow $5,000 per student per year and increases forgiveness to 15 percent additional for students returning to and practicing in a county with no town having over 5,000 people. Appropriates $500,000 - **Killed in Committee**

D. Opposed Bills
1. HB 820 - Requires Board of Regents to close medical school at USD and charges Board with responsibility of arranging with other states to educate South Dakota residents in medicine - **Killed in Committee**
2. SB 87 - Requires prescription drugs to identify ailment or condition on label - **Killed in Committee**
3. SB 112 - Prohibits all professions from restricting advertising of prices of goods and services - **Killed in Committee**

II. Uniform physical examination report forms for all colleges in South Dakota. Mr. Erickson was requested to communicate with Dr. Gibbs and request that all colleges utilize the same forms and that the Board of Regents be requested to take action so that all colleges use the examination report form now employed at the USD to facilitate these examinations and to assist students in transfer from one institution to another.

III. The letter from Mr. Donald F. Foy of the AMA concerning the Health Manpower Committee of that organization was read. No action by the Commission.

IV. Abolition of smallpox immunization as a prerequisite for admission to school was discussed briefly. No action necessary - already passed by 1972 legislature.

V. Mandatory PKU testing. It was the opinion of the Commissioners that mandatory testing has many pitfalls for the practicing physician and should be viewed with some concern. However, there is an excellent likelihood that legislation concerning this subject is to be introduced into the South Dakota Legislature at its next session by the Mental Retardation Association or other organization. This Association must formulate a stand in regard to it. Dr. Hayes reported that the South Dakota State Health Department will survey the M.D.'s of this state, the Pediatric Association and the state Pathology Association concerning their views in the matter and present these findings at the fall meeting of this Commission. The Medical Association will invite the Mental Health Association to present their proposed legislation to this Association prior to the next Commission meeting for consideration at the meeting. A member of the Mental Health Association will be invited to attend the next meeting of this Commission and present the case for the proposed legislation.

VI. Noise Pollution Law. At first glance the Industrial Safety and Health Act of 1970 may help reduce the injurious effect of noise in industry and on farms but does not apply to environmental noise pollution. There is an excellent likelihood that legislation will be introduced on a national level this year. The Commission will take no action but will watch developments.

VII. Brief discussion was had concerning poor communication between the AMA, the SDSMA and a district medical society recently. Dialogue will undoubtedly reach the AMA soon.

VIII. The USD Medical School. There was considerable discussion in the Commission concerning the future steps to be taken in the solution of medical school problems. No definite decisions were reached. However, it was the feeling of the Commissioners that the physicians of this state will have to be polled in regard to their opinions and status concerning the project. If the physicians are not behind it, the project will fail. This Commission will await further direction from the SDSMA as to the course to follow in the next session of the legislature.

Respectfully submitted,
J. B. Gregg, M.D., Chairman
Robert Hayes, M.D.
Bill Church, M.D.
R. L. Lillard, M.D.
Richard Tschetter, M.D.
R. G. Gere, M.D.
Thomas Bunker, M.D.
C. E. Tesar, M.D.
H. L. Frost, M.D.
R. W. Honke, M.D.
J. E. Ryan, M.D.
R. J. Foley, M.D.
Mr. Charles Lord, student rep.

The Reference Committee recommends the acceptance of the Report of the Commission on Legislation and Governmental Relations.

REPORT OF THE EXECUTIVE COMMITTEE

The Executive Committee reviewed nominations for appointment to the Admissions Committee of the School of Medicine at Vermillion. The names of two South Dakota doctors were submitted for consideration to the school.

A conference telephone call was held in February to consider the site of the annual meeting. Due to developments beyond our control in Huron, the Executive Committee voted to move the 1972 convention from Huron to Sioux Falls.

Respectfully submitted,
G. Robert Bartron, M.D., Chr.
W. R. Taylor, M.D.
T. H. Sattler, M.D.
John T. Elston, M.D.
Fred Leigh, M.D.
A. P. Reding, M.D.

The Reference Committee reviewed the report of the Executive Committee and recommends the acceptance of this report.

REPORT OF THE GRIEVANCE COMMITTEE

The Grievance Committee held two meetings during the past year and handled the balance of the work by correspondence.

One case involved a complaint against a physician for allegedly failing to properly diagnose a condition. The committee met personally with the complainant and again with the doctor. After considerable study the Committee determined that proper care had been rendered by the attending doctor. It was the recommendation of the committee that the doctor involved take more care in explaining his diagnosis and treatment to avoid misunderstanding in the future. The committee feels that good public relations in the treatment room can eliminate many situations that result in grievances being filed.

A second case was handled by correspondence. In this

situation a patient refused to pay a bill because he was not satisfied with the results of treatment. The Committee obtained the facts and found the doctor had rendered care and billed for his services in an ethical manner. The patient was advised that lack of satisfaction does not release him from his responsibility to pay for care received.

A third grievance was filed, but a final recommendation had not been formulated on the date of this report. The grievance involved a parent's dissatisfaction with diagnostic work performed on a child and the charge for the services rendered. Hopefully this case will be concluded prior to the annual meeting.

Several letters were received at the executive office concerning possible grievances, but no formal complaints were filed.

Respectfully submitted,
James P. Steele, M.D., Chairman
R. H. Quinn, M.D.
John J. Stransky, M.D.
John T. Elston, M.D.
J. A. Muggly, M.D.

The Reference Committee reviewed the report of the Grievance Committee and recommends the acceptance of this report.

REPORT OF UTILIZATION AND INSURANCE REVIEW COMMITTEE

During the past year, our Committee has reviewed and adjudicated 47 cases which were submitted either by the Medical Director or by the local (district) Utilization and Insurance Review Committees. The majority of the cases that came to review were due either to improper billing, inadequate medical documentation, or simple misunderstanding. The rare cases that involved fraud need not be chronicled as they have been referred to appropriate authorities.

The matter of concurrent care now seems to be well understood by the physicians, as we have had no recent cases involving daily billing by more than one physician. A statement of the policy on concurrent care has been circulated to the physicians of the state.

The physicians should be reminded again of two regulations that have continued to cause difficulty or misunderstanding:

1) The parenteral administration of drugs that can be administered orally is not an allowable charge unless the physician documents the necessity of parenteral administration at the time he submits his bill.

2) The regulations state that a physician may charge for only one call per month to a patient in a nursing home. A nursing-home patient may, of course, be seriously ill or have recurrent acute illnesses that necessitate repeated calls in any given month. If the necessity of the multiple calls is documented at the time of billing, there is no problem in the settlement of the case. We are also aware that outpatient care frequently keeps the patient out of the hospital. However, when a bill simply gives dates and charges of repeated nursing-home calls on the same patient in a given month or over a period of many months, the bill must be denied, except for one call per month. While this arbitrary action may be offensive to the physician because it would seem to question his veracity, the regulation is clear and we as a committee have no alternative course to follow. Perhaps the offensiveness of this regulation will be softened if the physicians of the state realize that we have documented evidence of cases where there have been repeated unsolicited nursing-home calls or house calls.

Our Committee has had two formal sessions during the past year, 14 July 1971 and 22 March 1972, for the purpose of reviewing cases that were complicated and could not be settled by correspondence.

Finally, on behalf of our entire Committee, I wish to thank the doctors of the state for their fine cooperation in helping us with the problems of ever-increasing controls and regulations in our practice of medicine. A special note of grateful appreciation is also extended to the local or district Utilization and Insurance Review Committees. They have performed a magnificent job this past year. They have settled cases fairly that would be impossible for a committee such as ours to properly evaluate, since we are widely separated geo-

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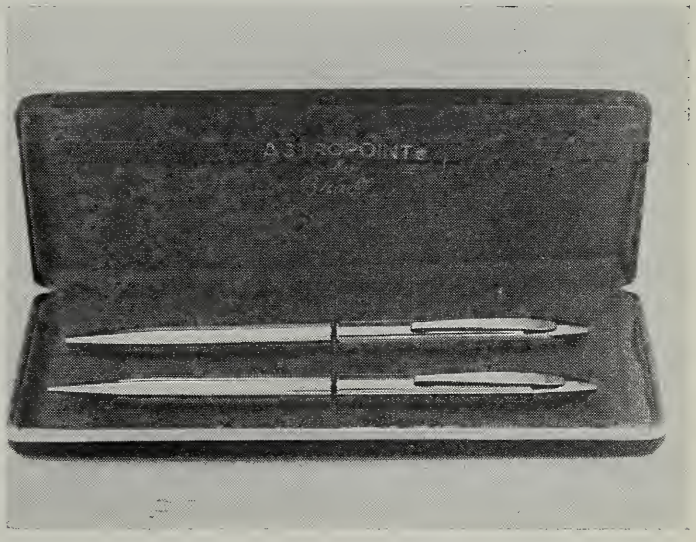

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Respectfully submitted,
C. B. McVay, M.D., Chairman
E. S. Palmerton, M.D.
R. E. Dean, M.D.
W. O. Rossing, M.D.
H. R. Lewis, M.D.
H. R. Brown, M.D.

The Reference Committee reviewed the report of the Utilization and Insurance Review Committee and recommends the acceptance of this report.

ANNUAL CORPORATION MEETING
Minutes of South Dakota Medical Service, Inc.
Ramada Inn, Sioux Falls, South Dakota
May 5, 1972, 1:30 p.m.

The meeting was called to order by John T. Elston, M.D., President, at 1:30 o'clock, Friday, May 5, 1972, pursuant to notice duly given.

The Secretary, Richard C. Erickson, called for permission to certify the roll call previously acknowledged in the House of Delegates of the South Dakota Medical Association. Accordingly, the following members were present for roll call: Doctors Bartron, Taylor, Sattler, Reding, Elston, Quinn, Stransky, Muggly, Seaman, Tracy, Swanson, Leigh, Lewis, Begley, Reaney, Ruud, Cosand, Ryan, Bell, Odland, Rudolph, Fedt, Auskaps, Belatti, Scheller, Spears, Gryte, Karlen, Gere, Mabee, Daw, Shaeffer, Lang, Ortmeier, McDonald, Rossing, Gregg, Halverson, Honke, Radack, Blunck, Barrett, Russell Harris, Gwinn, Langenfeld, and Nemer; and students, Mr. Tom Edwards, Mr. Nolan Anderson and Mr. Mike Haley.

Dr. Elston reviewed the history of Blue Shield during the past 15 years, and read the report which appeared in the handbook.

Dr. Bartron moved to dispense with the reading of the minutes of the previous meeting. The motion was seconded and on voice vote the motion carried.

Mr. Erickson discussed the financial reports as outlined in the Blue Shield Annual Report and the Corporate Body Handbook. Dr. C. L. Swanson moved to accept the financial reports as published. The motion was seconded by Dr. Leigh, and on voice vote, the motion carried.

Dr. Sattler presented the report of the Nominating Committee. The Committee submitted the names of the following individuals to be elected to the Board of Directors for three year terms:

B. F. King, M.D.
Paul Hohm, M.D.
J. T. Elston, M.D.

The name of James Jelbert was proposed for election to the Board of Directors as a lay member for a three year term.

Dr. Ortmeier moved that nominations cease and that the Corporate Body accept the report of the Nominating Committee. The motion was duly seconded, and on voice vote the motion carried.

Dr. Sattler requested that a letter be written to Mr. Richard Wold, expressing the appreciation of the Corporate Body for his service on the Board of Directors.

Dr. Begley asked that appreciation be expressed to Robert Johnson for his work on behalf of South Dakota Blue Shield.

On motion duly made and seconded, the meeting adjourned at 2:30 p.m.

Richard C. Erickson,
Secretary-Treasurer

BALANCE SHEET
December 31, 1971
ASSETS

Admitted Assets:	
Cash on Hand and in Bank	$ 163,622.63
Accounts Receivable—Federal Program	21,332.63
Accounts Receivable — Northwestern Bell Program	437.81
Accounts Receivable — Lutheran Hospital & Home Program	359.04
Expense Reimbursements Receivable	24,794.30
Premiums Due	10,409.28
Investment Income Receivable	24,192.46
Savings Certificates	
First Dakota National Bank Yankton, S.D.	15,000.00
United National Bank, Rapid City, S.D.	20,000.00
Valley State Bank, Yankton, S.D.	20,000.00
American State Bank, Yankton, S.D.	20,000.00
First State Bank, Armour, S.D.	20,000.00
Mitchell National Bank, Mitchell, S.D.	20,000.00
Custer County Bank, Custer, S.D.	20,000.00
United National Bank of Vermillion, Kennebec, S.D.	20,000.00
First National Bank of Black Hills, Rapid City, S.D.	20,000.00
Farmers & Merchants Bank, Watertown, S.D.	20,000.00
Dakota State Bank, Milbank, S.D.	20,000.00
Ipswich State Bank, Ipswich, S.D.	20,000.00
First National Bank, Brookings, S.D.	20,000.00
Citizens Bank, Clark, S.D.	20,000.00
Bank of Lemmon, Lemmon, S.D.	20,000.00
Citizens Bank, Mobridge, S.D.	20,000.00
Security Bank, Webster, S. D.	20,000.00
First National Bank, Sioux Falls, S.D.	20,000.00
Northwestern National Bank Sioux Falls, S.D.	20,000.00
National Bank of South Dakota Rapid City, S.D.	20,000.00
Commercial Trust & Savings Bank Mitchell, S.D.	20,000.00
Farmers & Merchants Bank, Huron, S.D.	20,000.00
Farmers & Merchants Bank Aberdeen, S.D.	20,000.00
Western State Bank, Sioux Falls, S.D.	20,000.00
The Pierre National Bank, Pierre, S.D.	20,000.00
First National Bank, Pierre, S.D.	20,000.00
Miners and Merchants Bank, Lead, S.D.	20,000.00
Parker State Bank, Parker, S.D.	20,000.00
McCook County National Bank, Salem, S.D.	20,000.00
Valley National Bank, Sioux Falls, S.D.	20,000.00
Farmers State Bank, Canton, S.D.	20,000.00
Corn Exchange Bank, Elkton, S.D.	20,000.00
Farmers and Merchants Bank Plankinton, S.D.	20,000.00
First National Bank, Beresford, S.D.	20,000.00
Tri-County State Bank, Chamberlain, S.D.	20,000.00
Burke State Bank, Burke, S.D.	20,000.00
Dakota State Bank, Baltic, S.D.	20,000.00
Aberdeen National Bank, Aberdeen, S.D.	20,000.00
First National Bank, Aberdeen, S.D.	20,000.00
State Bank of Alcester, Alcester, S.D.	20,000.00
First National Bank, Western Mall Sioux Falls, S.D.	20,000.00
Livestock State Bank, Artesian, S.D.	20,000.00
Big Stone State Bank, Big Stone City, S.D.	20,000.00
Bank of Belle Fourche, Belle Fourche, S.D.	10,000.00
Hand County State Bank, Miller, S.D.	10,000.00
1st National Bank, Watertown, S.D.	10,000.00
First Western Bank, Wall, S.D.	10,000.00
First National Bank, Miller, S.D.	10,000.00
Farmers State Bank, Faith, S.D.	10,000.00
First National Bank, Buffalo, S.D.	10,000.00
Spink County Bank, Redfield, S.D.	10,000.00
First Potter County Bank, Gettysburg, S.D.	10,000.00
Mansfield State Bank, Mansfield, S.D.	10,000.00
The Bank of Centerville, Centerville, S.D.	10,000.00
The Deuel County National Bank, Clear Lake, S.D.	10,000.00
	$ 970,000.00
U.S. Government Treasury Notes	$ 379,589.08
Savings and Loan	
First Federal Savings & Loan Watertown, S.D.	$ 10,000.00
Home Federal Savings & Loan, Sioux Falls, S.D.	20,000.00
First Federal Savings & Loan, Huron, S.D.	10,000.00

First Federal Savings & Loan, Sioux Falls, S.D.		10,000.00
Aberdeen Federal Savings &Loan, Aberdeen, S.D.		10,000.00
Madison Federal Savings & Loan, Madison, S.D.		10,000.00
Dakota Savings & Loan, Sioux Falls, S.D.		10,000.00
Yankton Savings & Loan, Yankton, S.D.		10,000.00
Brookings Savings & Loan, Brookings, S.D.		10,000.00
First Federal Savings & Loan, Beresford, S.D.		10,000.00
		$ 110,000.00
Mortgage Loan — South Dakota State Medical Association		$ 106,514.98
Real Estate		$ 31,920.00
Total Ledger Assets		$1,843,162.21

LIABILITIES AND RESERVES

Liabilities		
Accrued Premium Tax	$ 13,090.73	
Accounts Payable — Federal	11,300.00	
Accounts Payable — Northwestern Bell	2,815.00	
Accounts Payable — Lutheran	2,499.53	
Accrued Liabilities	76,831.89	
Total Liabilities		$ 106,537.15
Unearned Income		137,541.00
Reserves:		
Estimated Claims not Reported	$ 325,000.00	
Equalization of Comp 65 Program	30,000.00	
Equalization of Major Medical Program	30,000.00	
Total Reserves		$ 385,000.00
Surplus Unassigned		$1,214,084.06
Total Liabilities and Reserves		$1,843,162.21

STATEMENT OF OPERATIONS FOR YEAR ENDING DECEMBER 31, 1971

Earned Premium Income	$2,317,838.26	
Investment Income	77,210.19	
TOTAL INCOME		$2,395,048.45
Claims Expense		$1,682,061.13
Operating Expense	$ 981,510.91	
Less Reimbursements	552,956.06	
Net Operating Expense		$ 428,554.85
Total Claims and Operating Expense		$2,110,615.98
Net Gain to Surplus Unassigned		$ 284,432.57

ARMY MEDICARE PROGRAM CHAMPUS

INCOME	1971	1970
A. Claims Income	$214,968.54	$229,454.51
B. Admin. Income	14,604.13	18,611.09
TOTAL INCOME	$229,572.67	$248,065.60
EXPENSE		
A. Claims Expense	$211,795.63	$219,475.98
B. Admin. Expense	14,619.85	15,177.16
TOTAL EXPENSE	$226,415.48	$234,653.14
% of Adm. Expense To Claims Expense	6.9%	6.9%
ADMINISTRATIVE EXPENSE		
Salaries	$ 8,405.85	$ 9,285.78
Travel	385.90	283.59
Rent	1,200.00	1,128.00
Boards, Bureaus, Ass'n	56.88	251.69
Legal Expense	-0-	39.00
Furniture Depreciation	168.24	134.64
Equipment Rental	102.90	126.16
Printing & Stationery	343.43	49.96
Office Supplies	300.33	473.05
Books, Periodicals	15.32	23.31
Postage	679.61	441.80
Telephone	679.99	565.93
Wire System	-0-	-0-
Insurance	14.76	4.94
Employee Relations	553.54	744.54
Auditing	69.18	-0-
Pay to Service Agencies	1,072.02	1,010.53
Social Security	350.48	439.92
Board Meeting	122.37	-0-
Miscellaneous	-0-	-0-
Other Taxes	60.67	174.14
Real Estate Taxes	21.57	-0-
NET OPERATING EXPENSE	$ 14,619.85	$ 15,176.98

MEDICARE TITLE XVIII - PART B

INCOME	1971	1970
A. Claims Income	$ 4,297,500.00	$ 4,148,000.00
B. Admin. Expense	474,500.00	478,352.20
TOTAL INCOME	$ 4,772,000.00	$ 4,626,352.20
EXPENSE		
A. Claims Expense	$ 4,296,102.17	$ 4,100,474.45
B. Admin. Expense	470,010.85	484,857.58
TOTAL EXPENSE	$ 4,766,113.02	$ 4,585,332.03
% of Adm. Expense To Claims Expense	10.9%	11.8%
ADMINISTRATIVE EXPENSE		
Salaries	$192,077.41	$174,003.74
Travel	7,649.71	12,902.22
Rent	22,620.00	19,653.00
Boards, Bureaus	3,562.08	4,510.17
Legal Expense	15,549.93	5,857.97
Furniture Depreciation	4,236.00	2,605.32
Equipment Rental	6,165.45	5,953.08
Printing	6,544.84	13,292.77
Office Supplies	7,626.46	8,524.76
Periodicals	182.38	115.79
Postage	14,775.92	12,152.75
Telephone	8,770.40	10,306.27
Wire System	-0-	-0-
Insurance	718.09	497.73
Emp. Benefits	13,092.94	13,376.91
Auditing	632.37	-0-
Service Agencies	154,647.62	192,816.54
Social Security	7,871.78	8,184.40
Board Meeting	3,811.98	-0-
Miscellaneous	376.19	-0-
Other Taxes	1,622.16	3,237.66
Title XIX Usage	(2,971.05)	(3,133.50)
Real Estate Tax	449.19	-0-
NET OPERATING EXPENSE	$470,010.85	$484,857.58

South Dakota State Medical Association Roster — 1972
Membership by Districts

ABERDEEN
DISTRICT No. 1
Pres., Karl Kosse, M.D.
Sec., Juan Chavier, M.D.

*Alway, J. D. _____ Arizona
Avotins, R. _____ Faulkton
*Bloemendaal, G. J. _____ Ipswich
Bormes, R. E. _____ Aberdeen
Bormes, W. A. _____ Aberdeen
Broadhurst, K. A. _____ Aberdeen
Bunker, T. G. _____ Aberdeen
Calene, J. L. _____ Aberdeen
Chang, Joe P. _____ Aberdeen
Chavier, Juan R. _____ Aberdeen
Collins, James _____ Hoven
Damm, W. P. _____ Redfield
deDianous, N., Jr. _____ Aberdeen
Driver, I. _____ Aberdeen
Eckrich, J. A. _____ Aberdeen
Eckrich, J. A., Jr. _____ Aberdeen
Fahrenwald, M. _____ Redfield
Gerber, B. C. _____ Aberdeen
Gibbs, E. _____ Ipswich
*Graff, L. W. _____ Britton
Hovland, James I. _____ Aberdeen
Janusz, A. J. _____ Aberdeen
King, B. F. _____ Aberdeen
Kosse, Karl _____ Aberdeen
Leon, Paul _____ Aberdeen
*McCarthy, P. V. _____ Aberdeen
McGee, R. C. _____ Aberdeen
McIntosh, G. F. _____ Eureka
Murdy, C. B. _____ Aberdeen
Norgello, V. _____ Redfield
Odland, W. B. _____ Aberdeen
Patterson, D. _____ Redfield
Pelton, C. _____ Hoven
Perry, E. J. _____ Aberdeen
Rodine, J. C. _____ Aberdeen
Rudolph, E. A. _____ Aberdeen
Sanders, M. E. _____ Aberdeen
Scheffel, A. _____ Redfield
Seaman, David _____ Aberdeen
Shaw, H. _____ Ipswich
Shousha, Albert _____ Britton
Steele, G. H. _____ Aberdeen
Sweeny, W. T. _____ Aberdeen
Taylor, Wm. R. _____ Aberdeen
Vogele, A. C. _____ Aberdeen
Vogele, C. L. _____ Aberdeen
Zvejnieks, K. _____ Aberdeen

WATERTOWN
DISTRICT No. 2
Pres., Jose Michieli, M.D.
Sec., T. J. Wrage, Jr., M.D.

Allen, S. _____ Watertown
Argabrite, J. W. _____ Watertown
Auskaps, R. _____ Watertown
Bartron, G. Robert _____ Watertown
Bartron, H. J., Jr. _____ Watertown
Brakss, V. _____ Watertown
Brevik, A. K. _____ Watertown
Brown, H. Russell _____ Watertown
Clark, C. J. _____ Watertown
Desai, B. J. _____ Watertown
Fedt, D. _____ Watertown
Gysin, M. W. _____ Watertown
Heinrichs, E. H. _____ Watertown
Heupel, Alden R. _____ Watertown
Hughes, H. D. _____ Clear Lake
*Huppler, E. G. _____ Watertown
Larson, James C. _____ Watertown
Lillard, R. _____ Watertown
Michieli, Jose _____ Watertown
Nelson, P. S. _____ Watertown
Piro, David F. _____ Watertown
Reul, T. _____ Watertown
Rousseau, David _____ M.S.
Rousseau, M. C. _____ Watertown
Rud, James _____ Watertown
Stoltz, C. R. _____ Watertown
Stransky, J. J. _____ Watertown
Tracy, G. E. _____ Watertown
Wrage, T. J., Jr. _____ Watertown

MADISON-BROOKINGS
DISTRICT No. 3
Pres., F. X. McCabe, M.D.
Sec., C. M. Kershner, M.D.

Anderson, J. A. _____ Madison
Belatti, R. _____ Madison
Francisco, E. C. _____ Estelline
Friefeld, S. _____ Brookings
Henry, Robert _____ Brookings
Hura, R. _____ Howard
Kershner, C. M. _____ Brookings
Klar, W. _____ Flandreau
Lampert, A. A., Jr. _____ Madison
Lushbough, B. C. _____ Brookings
Malhi, D. S. _____ Lake Preston
Malhi, H. _____ Lake Preston
McCabe, F. X. _____ Brookings
Muggly, J. A. _____ Madison
Otey, B. T. _____ Flandreau
Patt, W. H. _____ Brookings
Peeke, A. P. _____ Volga
Plowman, E. T. _____ Brookings
Reagan, J. L. _____ Madison
Roberts, C. S., Jr. _____ Brookings
Scheller, D. L. _____ Arlington
Shaskey, R. E. _____ Brookings
*Sherwood, C. E. _____ Madison
Stensrud, H. J. _____ Madison
Tank, M. _____ Brookings
Wait, C. _____ Brookings
Watson, E. S. _____ Brookings
*Westaby, J. R. _____ Madison
*Whitson, G. E. _____ Madison
Wold, H. R. _____ Madison

PIERRE
DISTRICT No. 4
Pres., B. O. Lindbloom, M.D.
Sec., J. T. Cowan, M.D.

Askwig, L. C. _____ Pierre
Collins, E. H. _____ Gettysburg
Cowan, J. T. _____ Pierre
*Fox, S. W. _____ Florida
Ghatalia, B. K. _____ Gettysburg
Hayes, R. H. _____ Pierre
Horthy, A. _____ Kennebec
Horthy, K. _____ Kennebec
Jahraus, R. C. _____ Pierre
Kumar, John S. _____ Gettysburg
Lindbloom, B. O. _____ Pierre
Morrissey, M. M. _____ Pierre
Park, Dai H. _____ Pierre
Spears, B. _____ Pierre
Sundet, N. J. _____ Kadoka
Swanson, C. L. _____ Pierre
Tieszen, A. J. _____ Pierre
*Van Heuvelen, G. J. _____ Pierre
Werthman, H. E. _____ Pierre
Zakahi, R. J. _____ Pierre

HURON
DISTRICT No. 5
Pres., C. F. Gryte, M.D.
Sec., Emil Hofer, M.D.

Adams, H. P. _____ Huron
Bell, G. Robert _____ DeSmet
Buchanan, D. _____ Huron
Buchanan, R. A. _____ Huron
Dean, Roscoe _____ Wess. Springs
DeGeest, J. H. _____ Miller
Gryte, C. F. _____ Huron
*Hagin, J. C. _____ Miller
Hanson, Wm. O. _____ Huron
Hofer, E. A. _____ Huron
Hohm, P. _____ Huron
Hohm, T. _____ Huron
Huet, G. M. _____ Huron
Joseph, E. _____ Huron
Karlen, L. W. _____ DeSmet
Kim, T. _____ Huron
Lardinois, C. C. _____ Huron
Leigh, F. D. _____ Huron
Lenz, B. T. _____ Huron
Monfore, James _____ Miller
Orgusaar, R. _____ Florida
Saxton, W. H. _____ Huron
Saylor, H. L., Jr. _____ Huron
Tschetter, P. S. _____ Huron

MITCHELL — DISTRICT No. 6

Pres., J. O. Judge, M.D.
Sec., James L. Vose, M.D.

Berry, J. T. ——— Mitchell
Binder, C. F. ——— Chamberlain
Delaney, Robert ——— Mitchell
Delaney, W. A., Jr. ——— Mitchell
Erdmann, Ralph R. ——— Mitchell
Gere, R. G. ——— Mitchell
Gillis, F. D. ——— Mitchell
Hockett, Richard ——— Mitchell
Holland, L. W. ——— Chamberlain
Judge, J. O. ——— Mitchell
Lewis, H. R. ——— Mitchell
Lloyd, J. H. ——— Mitchell
Loos, C. M. ——— Chamberlain
Mabee, J. O. ——— Mitchell
Mabee, O. J. ——— Mitchell
McCann, J. P. ——— Parkston
Monson, C. D. ——— Parkston
Mueller, E. H. ——— Tripp
Murphy, John T. ——— Mitchell
Schabauer, E. A. ——— Mitchell
Skogmo, B. R. ——— Mitchell
*Tobin, F. J. ——— Mitchell
Tobin, L. W. ——— Mitchell
Vonburg, V. R. ——— Mitchell
Vose, J. L. ——— Mitchell
Weatherill, D. W. ——— Mitchell
Weber, R. A. ——— Mitchell

SIOUX FALLS—DISTRICT No. 7

Pres., Edward F. Daw, M.D.
Sec., James Shaeffer, M.D.
Treas., R. R. Giebink, M.D.

Alcorn, F. A. ——— Sioux Falls
Amundson, Loren ——— Sioux Falls
Anderson, C. ——— Sioux Falls
Anderson, T. R. ——— Sioux Falls
Anderson, W. R. ——— Sioux Falls
Angelos, T. ——— Canton
Arneson, W. A. ——— Sioux Falls
Aspaas, P. K. ——— Dell Rapids
Barlow, J. F. ——— Sioux Falls
Barnett, G. L. ——— Sioux Falls
Begley, B. J. ——— Sioux Falls
Billion, J. J. ——— Sioux Falls
Billion, T. J., Jr. ——— Sioux Falls
Breit, D. H. ——— Sioux Falls
Brewer, A. L. ——— Sioux Falls
Brzica, S. M. ——— Sioux Falls
Burns, E. A. ——— Sioux Falls
*Carney, M. ——— Texas
Chalmers, J. H. ——— Sioux Falls
Church, W. G. ——— Sioux Falls
*Cottam, G. I. W. ——— Sioux Falls
Cutshall, V. H. ——— Sioux Falls
Cutshall, V. K. ——— Sioux Falls
Daggett, James ——— Lennox
Daw, E. F. ——— Sioux Falls
DeClark, R. P. ——— Sioux Falls
de Marco, Lynn ——— Sioux Falls
Devick, J. C. ——— Colton
Donahoe, J. W. ——— Sioux Falls
Donahoe, R. R. ——— Sioux Falls
*Donahoe, W. E. ——— Sioux Falls
Eirinberg, I. ——— Sioux Falls
Elkjer, Neil ——— Sioux Falls
Ensberg, D. ——— Sioux Falls
Entwistle, F. R. ——— Sioux Falls
Epp, D. ——— Freeman
Ericksen, E. G. ——— Sioux Falls
Farkas, E. C. ——— Sioux Falls
Farrell, H. W. ——— Sioux Falls
Felker, James ——— Sioux Falls
Ferrell, M. R. ——— Sioux Falls
Fisk, R. G. ——— Dell Rapids
Friess, R. W. ——— Sioux Falls
Frost, D. M. ——— Sioux Falls
Giebink, R. R. ——— Sioux Falls
*Green, R. D. ——— Sioux Falls
Greenfield, R. E. ——— Sioux Falls
Greenfield, R. E. ——— Sioux Falls
Gregg, J. B. ——— Sioux Falls
Gross, H. Phil ——— Sioux Falls
*Grove, M. S. ——— Sioux Falls
Gunnarson, R. E. ——— Sioux Falls
Hansen, H. F. ——— Sioux Falls
Hermanson, J. M. ——— Valley Springs
Hosen, R. S. ——— Sioux Falls
Hoskins, J. H. ——— Sioux Falls
Hoskins, John ——— Sioux Falls
Ihle, C. W. ——— Sioux Falls
Janis, J. B. ——— Sioux Falls
Jaqua, R. A. ——— Sioux Falls
Johnson, D. L. ——— Sioux Falls
Jones, W. L. ——— Sioux Falls
Kaufman, I. I. ——— Freeman
Kemper, C. E. ——— Viborg
Kilbride, J. E. ——— Sioux Falls
King, L. M. ——— Sioux Falls
Kittelson, H. O. ——— Sioux Falls
Kohlmeyer, F. C. ——— Sioux Falls
Lakstigala, P. ——— Sioux Falls
Lang, Durward ——— Sioux Falls
Larson, C. S. ——— Chicago
Larson, Leland J. ——— Sioux Falls
Leander, R. B. ——— Sioux Falls
Leraan, L. G. ——— Sioux Falls
Lie, Dagfinn ——— Sioux Falls
Maresh, E. R. ——— Sioux Falls
Moller, C. ——— Nebraska
Mutch, M. J. ——— Sioux Falls
McDonald, C. J. ——— Sioux Falls
McGreevy, E. J. ——— Sioux Falls
McGreevy, J. V. ——— Sioux Falls
McGreevy, P. S. ——— Sioux Falls
McHardy, B. R. ——— Sioux Falls
McManus, T. B. ——— Sioux Falls
Naughton, G. ——— Sioux Falls
Nelson, Earl ——— Viborg
*Nelson, J. A. ——— California
Nelson, R. E. ——— Sioux Falls
Nice, Richard ——— Sioux Falls
Ochsner, J. A. ——— Sioux Falls
Ogborn, R. J. ——— Sioux Falls
Ohrt, D. E. ——— M.S.
Olson, R. G. ——— Sioux Falls
Opheim, W. L. ——— Sioux Falls
Orr, R. T. ——— Sioux Falls
Ortmeier, Denny ——— Sioux Falls
*Parke, L. L. ——— Canton
Pasek, E. A. ——— Sioux Falls
Peik, D. J. ——— Sioux Falls
Petereit, M. F. ——— Sioux Falls
Peters, E. H. ——— Sioux Falls
Petres, A. ——— Salem
Pitt-Hart, Barry T. ——— Sioux Falls
Quinn, R. H. ——— Sioux Falls
*Quinn, R. J. ——— Sioux Falls
Reagan, P. R. ——— Sioux Falls
Rossing, W. O. ——— Sioux Falls
Rost, M. ——— Sioux Falls
Salmon, Don ——— Sioux Falls
Sanderson, E. W. ——— Sioux Falls
Schultz, R. D. ——— Sioux Falls
Sercl, W. ——— Sioux Falls
Shaeffer, J. H. ——— Sioux Falls
Shreves, H. ——— Sioux Falls
Stahmann, F. ——— Sioux Falls
Steiner, P. K. ——— Sioux Falls
Stern, C. A. ——— California
Swanson, P. ——— Sioux Falls
Sweeney, L. J. ——— Sioux Falls
Tam, Guy ——— Sioux Falls
Tschetter, R. T. ——— Sioux Falls
Van Demark, R. E. ——— Sioux Falls
Villa, Jose ——— Freeman
Volin, V. V. ——— Sioux Falls
Wagner, Loyd ——— Sioux Falls
Waltner, Lonnie ——— Bridgewater
Walton, J. E. ——— Sioux Falls
Wegner, K. H. ——— Sioux Falls
Williams, B. J. ——— Sioux Falls
Williams, M. F. ——— Minnesota
Zandersons, V. ——— Parker

YANKTON — DISTRICT No. 8

Pres., Richard Porter, M.D.
Sec., C. R. Herbrandson, M.D.
Treas., James K. Jackson, M.D.

Auld, Marian ——— Yankton
Auld, M. A. ——— Yankton
Behan, Lawrence ——— Yankton
Berg, S. ——— Scotland
Doubrava, S. M. ——— Yankton
English, E. J. ——— Tyndall
Fletcher, H. ——— Vermillion
Foley, R. J. ——— Tyndall
*Haas, F. W. ——— Yankton
Halverson, K. ——— Yankton
Held, G. ——— Yankton
Herbrandson, C. R. ——— Vermillion
Herzog, B. F. ——— Yankton
*Hill, J. F. ——— Yankton
Holzwarth, D. R. ——— Yankton
Honke, R. W. ——— Wagner
Hubner, R. F. ——— Yankton
Jackson, J. K. ——— Yankton
Jameson, G. M. ——— Yankton
Johnson, C. F. ——— Yankton
Kalda, E. F. ——— Platte
Kleinsasses, G. ——— Scotland
Knabe, G. W. ——— Minnesota
Lyso, M. ——— Yankton
McVay, C. B. ——— Yankton
Moore, E. J. ——— Vermillion
Muckala, Kenneth ——— Vermillion
Porter, Richard I. ——— Yankton
Pratt, F. ——— Yankton
Price, Ronald ——— Armour
Radack, Morris ——— Yankton
Ranney, B. ——— Yankton
Reaney, D. B. ——— Yankton
Reding, A. P. ——— Marion
Ryan, C. F. ——— New York
Saoi, N. B. ——— Yankton
Sattler, T. H. ——— Yankton
Savage, L. ——— Yankton
Sebring, F. U. ——— Vermillion
Stanage, W. F. ——— Yankton
Steele, J. P. ——— Yankton
Stephenson, D. R. ——— Yankton
Thompson, R. F. ——— Yankton
Thornton, R. R. ——— Yankton
Tidd, J. T. ——— Yankton
Turner, C. R. ——— Vermillion
Willcockson, T. H. ——— Yankton

BLACK HILLS
DISTRICT No. 9
Pres., Russell Harris, M.D.
Sec., J. A. Kovarik, M.D.

Ahrlin, H. L. _____ Rapid City
Allen, Bruce _____ Rapid City
Anderson, A. B. _____ Lead
Bailey, J. D. _____ Rapid City
Bareis, R. J. _____ Rapid City
Barrett, A. J. _____ Rapid City
Behrens, C. L. _____ Rapid City
Bergeron, Dale _____ Rapid City
Berkebile, Dale _____ Rapid City
Blake, Charles A. ____ Rapid City
Bloemendaal, R. D. ___ Rapid City
Blunck, C. J. _____ Rapid City
Borgmeyer, H. J. _____ Rapid City
Boyce, R. A. _____ Rapid City
Bray, R. B. _____ Rapid City
Burnett, R. G. _____ Rapid City
Cameron, D. E. _____ Rapid City
Carson, L. E. _____ Lead
*Chassell, J. L. ____ Belle Fourche
*Clark, B. S. _____ Spearfish
Cline, J. A. _____ Rapid City
Cornford, R. C. _____ Rapid City
*Crane, H. L. _____ Avon, Conn.
Davidson, H. E. _____ Ft. Meade
Dewald, A. _____ Rapid City
Dulaney, C. H. _____ Ft. Meade
Dzintars, P. F. _____ Rapid City
Elston, J. T. _____ Rapid City
*Feehan, J. J. _____ Rapid City
Finley, R. C. _____ Rapid City
Freimark, L. G. _____ Rapid City
Fromm, H. E. _____ Rapid City
Frost, H. L. _____ Rapid City
Geib, W. A. _____ Rapid City
Gilbert, F. J. _____ Ft. Meade
Golliher, W. N. _____ Spearfish
Gwinn, C. B. _____ Rapid City
Hamm, Joseph _____ Sturgis
Hare, H. J. _____ Rapid City
*Hare, Lyle _____ Spearfish
Harris, R. H. _____ Rapid City
Haugan, H. O. _____ Rapid City
Henrie, H. D. _____ Rapid City
Hewitt, J. M. _____ Rapid City
Jacobson, T. R. _____ Hot Springs
Jatoi, A. M. _____ Deadwood
Javurek, A. J. _____ Deadwood
Johnson, Robert K. ____ Rapid City
Jones, W. E. _____ Sturgis
Kegaries, D. L. _____ Rapid City
Kovarik, J. A. _____ Rapid City
Kovarik, R. A. _____ Rapid City
Kovarik, W. J. _____ Rapid City
Kunz, J. A. _____ Rapid City
Kwan, F. P. _____ Rapid City
Lampert, A. A. _____ Rapid City
Langenfeld, M. G. _____ Spearfish
Mangulis, G. _____ Philip
Marousek, M. _____ Belle Fourche
Mattox, J. E. _____ Deadwood
Massa, L. L. _____ Sturgis
Mattox, James _____ Deadwood
Mattson, W. _____ Rapid City
Mead, T. _____ Spearfish
Merryman, M. P. _____ Rapid City
Millea, R. P. _____ Rapid City
Munson, H. B. _____ Rapid City
*O'Toole, T. F. _____ Rapid City
Owen, G. S. _____ Rapid City
Padma-Raju, A. M. ____ Ft. Meade
Palmerton, E. S. _____ Rapid City
*Radusch, F. J. _____ Rapid City
Reinohl, W. _____ Custer
Ruud, E. T. _____ Rapid City
*Salladay, I. R. _____ Pierre
*Saxton, A. J. _____ Kansas
Sejvar, J. P. _____ St. Paul
Semones, A., Jr. _____ Lead
Sherrill, S. F. _____ Belle Fourche
Slingsby, J. B. _____ Rapid City
Swisher, L. P. _____ Kadoka
Tesar, C. E. _____ Rapid City
Theissen, H. H. _____ Rapid City
Trinidad, R. _____ Deadwood
Westaby, R. S., Jr. ____ Rapid City
Whitney, N. R. _____ Rapid City
Williams, F. R. _____ Rapid City
Wood, G. F. _____ Rapid City
Yackley, J. V. _____ Rapid City
Zanka, J. A. _____ Rapid City

ROSEBUD
DISTRICT No. 10
Pres., K. K. Verma, M.D.
Sec., Robert Stiehl, M.D.

Cosand, M. R. _____ Winner
Nemer, R. G. _____ Gregory
Stiehl, R. _____ Winner
Sweet, E. P. _____ Burke
Verma, K. _____ Gregory

NORTHWEST
DISTRICT No. 11
Pres., Gus Torkildson, M.D.
Sec., B. P. Nolan, M.D.

Johnson, C. A. _____ Lemmon
Linde, Leonard _____ Mobridge
Nolan, B. P. _____ Mobridge
Ryan, J. E. _____ Mobridge
*Spiry, A. W. _____ Mobridge
Torkildson, G. _____ McLaughlin
Totten, F. C. _____ Lemmon

WHETSTONE VALLEY
DISTRICT No. 12
Pres., Joseph Lovering, M.D.
Sec., L. F. Nelson, M.D.

Batt, E. J. _____ Sisseton
Bell, Eldon _____ Webster
†Brinkman, W. C. _____ Sisseton
Buentipo, B. _____ Milbank
Gregory, D. A. _____ Milbank
Janavs, V. _____ Milbank
Johnson, E. A. _____ Milbank
Judge, W. T. _____ Milbank
Kass, Joseph _____ Rosholt
Lovering, J. _____ Sisseton
Nelson, L. F. _____ Webster
Vogelgesang, L. C. _____ Webster

M.S.—Indicates Military Service

*—Indicates Honorary Membership
†—Indicates Retired from Practice

South Dakota State Medical Association Roster — 1972
Membership — Alphabetical Listing

Adams, H. P. _____ Huron
Ahrlin, H. L. _____ Rapid City
Alcorn, F. A. _____ Sioux Falls
Allen, Bruce _____ Rapid City
Allen, S. W. _____ Watertown
*Alway, J. D. _____ Arizona
Amundson, Loren ____ Sioux Falls
Anderson, A. B. _____ Lead
Anderson, C. Wm. ____ Sioux Falls
Anderson, J. A. _____ Madison
Anderson, T. R. _____ Sioux Falls
Anderson, W. R. _____ Sioux Falls
Angelos, T. _____ Canton
Argabrite, J. W. _____ Watertown
Arneson, W. A. _____ Sioux Falls
Askwig, L. C. _____ Pierre
Aspaas, P. K. _____ Dell Rapids
Auld, Marian _____ Yankton
Auld, M. A. _____ Yankton
Auskaps, R. _____ Watertown
Avotins, R. _____ Faulkton
Bailey, J. D. _____ Rapid City
Bareis, R. J. _____ Rapid City
Barlow, J. F. _____ Sioux Falls
Barnett, G. L. _____ Sioux Falls
Bartron, G. R. _____ Watertown
Bartron, H. J., Jr. ____ Watertown
Batt, E. J. _____ Sisseton
Begley, B. J. _____ Sioux Falls
Behan, L. G. _____ Yankton
Behrens, C. L. _____ Rapid City
Belatti, R. _____ Madison
Bell, Eldon _____ Webster
Bell, G. Robert _____ DeSmet
Bergeron, Dale _____ Rapid City
Berkebile, D. _____ Rapid City
Berry, J. T. _____ Mitchell
Billion, J. J. _____ Sioux Falls
Billion, T. J., Jr. _____ Sioux Falls
Binder, C. F. _____ Chamberlain
Blake, C. A. _____ Rapid City
*Bloemendaal, G. J. _____ Ipswich
Bloemendaal, R. D. ___ Rapid City
Blunck, C. F. _____ Rapid City
Borgmeyer, H. J. ____ Rapid City
Bormes, R. E. _____ Aberdeen
Bormes, W. A. _____ Aberdeen
Boyce, R. A. _____ Rapid City
Brakss, V. _____ Watertown
Bray, R. B. _____ Rapid City
Breit, D. H. _____ Sioux Falls
Brevik, A. K. _____ Watertown
Brewer, A. L. _____ Sioux Falls
†Brinkman, W. C. _____ Sisseton
Broadhurst, K. A. _____ Aberdeen
Brown, H. R. _____ Watertown
Brzica, S. M. _____ Sioux Falls
Buchanan, D. _____ Huron
Buchanan, R. A. _____ Huron
Buentipo, B. _____ Milbank
Bunker, T. G. _____ Aberdeen
Burnett, R. G. _____ Rapid City
Burns, E. A. _____ Sioux Falls
Burns, K. R. _____ Sioux Falls
Calene, J. L. _____ Aberdeen
Cameron, D. E. _____ Rapid City
*Carney, M. ____ Ft. Worth, Texas
Carson, L. E. _____ Lead
Chalmers, J. H. _____ Sioux Falls
Chang, J. P. _____ Aberdeen
*Chassell, J. L. _____ Belle Fourche
Chavier, J. R. _____ Aberdeen
Church, Bill G. _____ Sioux Falls
*Clark, B. S. _____ Spearfish
Clark, C. J. _____ Watertown
Cline, J. A. _____ Rapid City
Collins, E. H. _____ Gettysburg
Collins, James _____ Hoven
Cornford, R. C. _____ Rapid City
Cosand, M. R. _____ Winner
*Cottam, G. I. W. ____ Sioux Falls
Cowan, J. T. _____ Pierre
*Crane, H. L. _____ Connecticut
Cutshall, V. H. _____ Sioux Falls
Cutshall, V. K. _____ Sioux Falls
Daggett, James _____ Lennox
Damm, W. P. _____ Redfield
Davidson, H. E. _____ Ft. Meade
Daw, E. F. _____ Sioux Falls
Dean, Roscoe _____ Wess. Springs
DeClark, R. P. _____ Sioux Falls
deDianous, N., Jr. _____ Aberdeen
De Geest, J. H. _____ Miller
Delaney, R. J. _____ Mitchell
Delaney, W. A., Jr. _____ Mitchell
de Marco, Lynn _____ Sioux Falls
Desai, B. J. _____ Watertown
Devick, J. S. _____ Colton
Dewald, A. _____ Rapid City
Donahoe, J. W. _____ Sioux Falls
Donahoe, R. R. _____ Sioux Falls
*Donahoe, W. E. ____ Sioux Falls
Doubrava, S. F. _____ Yankton
Driver, I. E. _____ Aberdeen
Dulaney, C. H. _____ Ft. Meade
Dzintars, P. F. _____ Rapid City
Eckrich, J. A. _____ Aberdeen
Eckrich, J. A., Jr. _____ Aberdeen
Eirinberg, I. _____ Sioux Falls
Elkjer, Neil _____ Sioux Falls
Elston, J. T. _____ Rapid City
English, E. J. _____ Tyndall
Ensberg, D. L. _____ Sioux Falls
Entwistle, F. R. _____ Sioux Falls
Epp, D. L. _____ Freeman
Erdmann, R. R. _____ Mitchell
Erickson, E. G. _____ Sioux Falls
Fahrenwald, M. _____ Redfield
Farkas, E. C. _____ Sioux Falls
Farrell, H. W. _____ Sioux Falls
Fedt, Donald _____ Watertown
†Feehan, J. J. _____ Rapid City
Felker, J. _____ Sioux Falls
Ferrell, M. R. _____ Sioux Falls
Finley, R. C. _____ Rapid City
Fisk, R. G. _____ Dell Rapids
Fletcher, H. _____ Vermillion
Foley, R. J. _____ Tyndall
*Fox, S. W. _____ Florida
Francisco, E. G. _____ Estelline
Freimark, L. _____ Rapid City
Friefeld, S. _____ Brookings
Friess, R. W. _____ Sioux Falls
Fromm, H. E. _____ Rapid City
Frost, D. M. _____ Sioux Falls
Frost, H. L. _____ Rapid City
Geib, W. A. _____ Rapid City
Gerber, B. C. _____ Aberdeen
Gere, R. G. _____ Mitchell
Ghatalia, B. K. _____ Gettysburg
Giebink, R. R. _____ Sioux Falls
Gilbert, F. T. _____ Ft. Meade
Gibbs, E. _____ Ipswich
Gillis, F. D. _____ Mitchell
Golliher, W. N. _____ Spearfish
*Graff, L. W. _____ Britton
Green, R. D. _____ Sioux Falls
Greenfield, D. L. _____ Sioux Falls
Greenfield, R. E. _____ Sioux Falls
Gregg, J. B. _____ Sioux Falls
Gregory, D. A. _____ Milbank
Gross, H. Phil _____ Sioux Falls
*Grove, M. S. _____ Sioux Falls
Gryte, C. F. _____ Huron
Gunnarson, R. E. ____ Sioux Falls
Gwinn, C. B. _____ Rapid City
Gysin, Walter _____ Watertown
*Haas, F. W. _____ Yankton
*Hagin, J. C. _____ Miller
Halverson, K. _____ Yankton
Hamm, Joseph _____ Deadwood
Hansen, H. F. _____ Sioux Falls
Hanson, W. O. _____ Huron
Hare, H. J. _____ Rapid City
*Hare, Lyle _____ Spearfish
Harris, Russell _____ Rapid City
Haugan, H. O. _____ Rapid City
Hayes, R. H. _____ Pierre
Heinrichs, E. H. _____ Watertown
Henrie, H. P. _____ Rapid City
Henry, Robert _____ Brookings
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Hermanson, J. M. _ Valley Springs
Herzog, B. F. _____ Yankton
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*Hill, J. F. _____ Yankton
Hockett, R. D. _____ Mitchell
Hofer, E. A. _____ Huron
Hohm, Paul _____ Huron
Hohm, Theo. _____ Huron
Holland, L. W. _____ Yankton
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Honke, R. W. _____ Wagner
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Horthy, K. _____ Kennebec
Hosen, R. S. _____ Sioux Falls
Hoskins, J. H. _____ Sioux Falls
Hoskins, John _____ Sioux Falls
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Mabee, O. J. _____ Mitchell
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Malhi, H. _____ Lake Preston
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McGreevy, J. V. _____ Sioux Falls
McGreevy, P. S. _____ Sioux Falls
McHardy, B. R. _____ Sioux Falls
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Ohrt, D. E. _____ Sioux Falls
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Ruud, E. T. _____ Rapid City
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Savage, L. _____ Yankton
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Saylor, H. L., Jr. _____ Huron
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Semones, A., Jr. _____ Lead
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Steele, J. P. _____ Yankton
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Stensrud, H. J. _____ Madison
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Stransky, J. J. _____ Watertown
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Swisher, L. P. _____ Kadoka
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Tank, M. C. _____ Brookings
Taylor, Wm. R. _____ Aberdeen
Tesar, C. E. _____ Rapid City
Theissen, H. H. _____ Rapid City
Thompson, R. F. _____ Yankton
Thornton, R. R. _____ Yankton
Tidd, J. T. _____ Yankton
Tieszen, A. J. _____ Pierre
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Tschetter, R. T. _____ Sioux Falls
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Van Demark, R. E. _____ Sioux Falls
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Zvejnieks, K. _____ Aberdeen

M.S.—Indicates Military Service

*—Indicates Honorary Membership
†—Indicates Retired from Practice

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Started in 1951—T. F. Riggs, M.D., Pierre (deceased)
1952—H. Russell Brown, M.D., Watertown
1953—Guy Van Demark, M.D., Sioux Falls (deceased)
1954—J. C. Ohlmacher, M.D., Vermillion (deceased)
1955—R. G. Mayer, M.D., Aberdeen (deceased)
1956—J. C. Ohlmacher, M.D., Vermillion (deceased)
1957—W. E. Donahoe, M.D., Sioux Falls
1958—Drs. J. C. Hagin, M. W. Pangburn (deceased), and James DeGeest, Miller
1958—J. F. Brenckle, M.D., Superior, Wisc. (deceased)
1958—Mrs. Agnes Holdridge, Madison
1959—Walter L. Hard, Ph.D., Vermillion
1959—Rev. and Mrs. Robert O. Bates, Sturgis
1959—R. M. Kilgard, M.D., Watertown (deceased)
1960—L. J. Pankow, M.D., Sioux Falls (deceased)
1961—Gregg M. Evans, Ph.D., Custer
1962—Edwin Shaw, Ph.D., Vermillion
1963—Arthur A. Lampert, M.D., Rapid City
1964—John C. Foster, Phoenix, Arizona
1965—A. P. Reding, M.D., Marion
1966—Mrs. C. Rodney Stolz, Watertown
1967—Mrs. William Fish, Watertown
1968—G. J. Bloemendaal, M.D., Ipswich
1969—F. W. Haas, M.D., Yankton
1970—Paul Bunker, M.D., Aberdeen (deceased)
1971—E. T. Lietzke, M.D., Beresford (deceased)
1972—C. B. McVay, M.D., Yankton

FIFTY YEAR CLUB MEMBERS

C. V. Auld, Plankinton (deceased)
R. A. Buchanan, M.D., Huron
Myrtle Carney, M.D., Ft. Worth, Texas
J. C. Clark, M.D., Sioux Falls (deceased)
F. L. Class, M.D., Huron (deceased)
M. E. Cogswell, M.D., Wolsey (deceased)
J. Cook, M.D., Bonesteel (deceased)
Harold L. Crane, M.D., Avon, Conn.
S. A. Donahoe, M.D., Sioux Falls (deceased)
W. E. Donahoe, M.D., Sioux Falls
V. W. Embree, M.D., Pierre
W. D. Farrell, M.D., Aberdeen (deceased)
R. B. Fleeger, M.D., Lead (deceased)
R. R. Fisk, M.D., Flandreau (deceased)
F. W. Freyberg, M.D., Mitchell
E. E. Gage, M.D., Sioux Falls (deceased)
D. A. Gregory, M.D., Milbank
E. H. Grove, M.D., Arlington (deceased)
J. C. Hagin, M.D., Miller
Lyle Hare, M.D., Spearfish
J. A. Hohf, M.D., Yankton (deceased)
F. S. Howe, M.D., Deadwood (deceased)
A. H. Hoyne, M.D., Salem (deceased)
A. S. Jackson, M.D., Rapid City (deceased)
R. J. Jackson, M.D., Hot Springs (deceased)
J. A. Jacotel, M.D., Milbank (deceased)
G. T. Jordan, M.D., Vermillion (deceased)
F. F. Keene, M.D., Wessington Springs (deceased)
J. H. Lloyd, M.D., Mitchell (deceased)
G. W. Mills, M.D., Wall (deceased)
B. C. Murdy, M.D., Aberdeen (deceased)
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M. O. Pemberton, M.D., Deadwood (deceased)
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T. F. Riggs, M.D., Pierre (deceased)
W. H. Saxton, M.D., Huron
H. L. Saylor, M.D., Huron (deceased)
C. E. Sherwood, M.D., Madison
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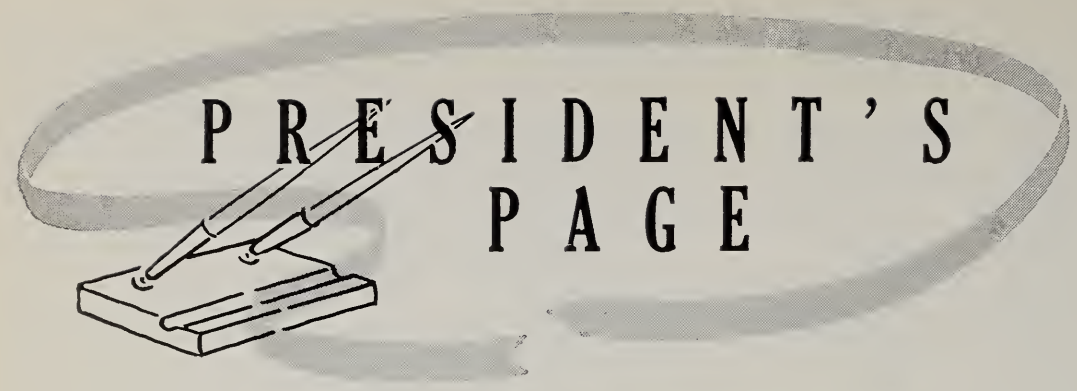
J. S. Tschetter, M.D., Huron
F. W. Valkenaar, M.D., Chancellor (deceased)
G. E. Van Demark, M.D., Sioux Falls (deceased)
H. P. Volin, M.D., Lennox (deceased)
C. H. Weishaar, M.D., Aberdeen (deceased)
J. R. Westaby, M.D., Madison
G. E. Zimmerman, M.D., Missoula, Montana (deceased)

COMMUNITY SERVICE AWARD

1961—R. A. Buchanan, M.D., Huron
1962—Roland F. Hubner, M.D., Yankton
1963—George W. Mills, M.D., Wall (deceased)
1964—John C. Hagin, M.D., Miller
1965—Alonzo P. Peeke, M.D., Volga
1966—Hugo C. Andre, M.D., Vermillion (deceased)
1967—G. Robert Bartron, M.D., Watertown
1968—M. M. Morrissey, M.D., Pierre
1969—N. J. Sundet, M.D., Kadoka
1970—W. H. Saxton, M.D., Huron
1971—R. E. Van Demark, M.D., Sioux Falls
1972—R. H. Hayes, M.D., Pierre

AESCULAPIUS AWARD

1966—Paul R. Leon, M.D.
Walter Miller, M.D., Aberdeen
1968—H. Phil Gross, M.D., Sioux Falls



PRESIDENT'S PAGE

The 121st annual convention of the American Medical Association is now history. The AMA has been subject to much criticism, constructive and otherwise, in recent years. It was reassuring to me to witness and be a part of the workings of the House of Delegates at the recent meeting in San Francisco. The nine reference committees held in-depth hearings which take the form of an open forum with all voices heard and varying opinions given. Whomever wishes to make a presentation may do so—member or nonmember, physician or lay person, medical student or house officer.

I can vouch for the fact that the South Dakota Medical Association has selected active, knowledgable and dedicated representatives. Your delegate, Robert Quinn, M.D.; alternate delegate, John Stransky, M.D. and executive secretary, Bob Johnson worked diligently and for many hours daily considering the matters coming before the House and Bob Quinn served on reference committee G. It was also his pleasure to second the nomination of Russell Roth, M.D., president elect, who served a year of residency in Pierre, South Dakota shortly after graduation from medical school.

The new president of the AMA, Carl A. Hoffman, M.D., in his inaugural address, emphasized the need for "The House of Medicine" to regroup and pull together in order to satisfactorily respond to the needs of those receiving and those providing medical services. His charge to younger and to all physicians was to "alter the House of Medicine as you will—strengthen it if you can—but above all preserve it".

W. R. Taylor, M.D.

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40th Annual Postgraduate Assembly

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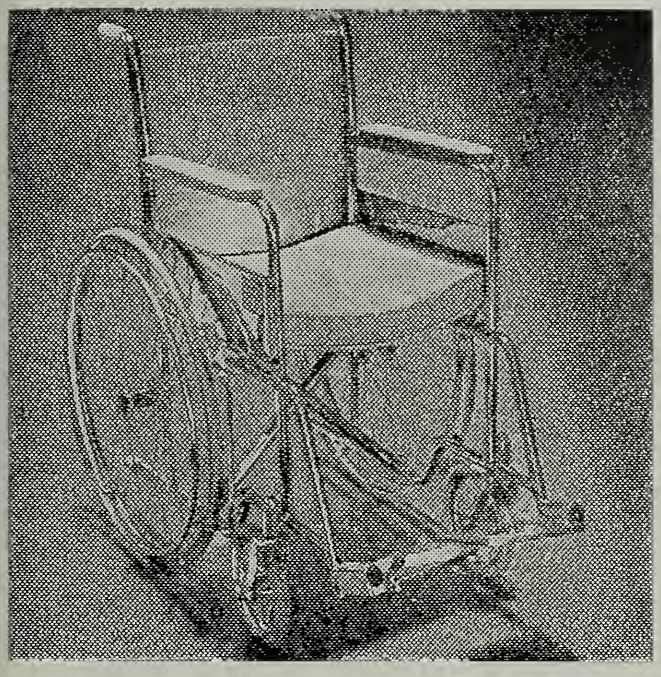
John A. Haggstrom, M.D., Director of Clinics

ANNOUNCEMENT OF
POSTGRADUATE COURSE

CLINICAL GASTROENTEROLOGY — September 10-16, 1972; Castle Harbour Hotel, Bermuda. Vernon M. Smith, M.D., Director, 301 St. Paul Place, Baltimore, Md. 21202.



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This is your MEDICAL ASSOCIATION

News Notes • Changes • Births • News

H. O. Kittelson, M.D., Sioux Falls; **Lloyd Vogelgesang, M. D.,** Webster; and **Rose Faithe, M.D.,** Beresford, have been elected to active membership in the American Academy of Family Physicians, a national association of more than 31,000 family doctors.

* * *

The National Health Service has announced the assignment of two physicians to Martin, South Dakota. They are Frank Lord, M.D., formerly of Portland, Oregon and Steve Napolitana, M.D. who recently completed his internship training at Creighton University, Omaha.

* * *

John Slingsby, M.D. and **Nathaniel Whitney, M.D.,** both of Rapid City, attended the annual meeting of the Great Plains Organization for Perinatal Health Care held in Minneapolis which includes physicians and nurses active in obstetrics and pediatrics in South Dakota, North Dakota, Iowa, Minnesota, Nebraska and Wisconsin.

The American College of Physicians announced that **Dale Bergeron, M.D.,** Rapid City, has been made a Fellow of that 56 year old international society which represents specialists in internal medicine and related fields.

* * *

Thomas Looby, M.D., Sioux Fallis, is now associated with Drs. Mutch and Williams in the practice of Obstetrics and Gynecology.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

Richard C. Erickson, Blue Shield Executive Director, was recently elected to the Board of Directors of Rushmore Mutual Life Insurance Company, Rapid City.

* * *

S. A. Kumar, M.D., formerly of Faulkton, and **John Kumar, M.D.** and **B. K. Ghatalia, M.D.,** formerly of Gettysburg, have opened a clinic in Weatherford, Texas.

* * *

R. A. Buchanan, M.D., has been re-appointed to the South Dakota Board of Medical and Osteopathic Examiners. Dr. Buchanan is from Huron, South Dakota.

Richard Crowder, M.D., 51, was a victim of the Rapid City flood on June 9. Dr. Crowder, a neurological surgeon, attended Jefferson Medical College of Philadelphia, interned at Kansas City General Hospital and took his residency training at Lahey Clinic in Boston and Baptist Memorial Hospital in Memphis, Tennessee. He had practiced in South Dakota since 1958.

COURSE IN LARYNGOLOGY AND BRONCHOESOPHAGOLOGY

The Department of Otolaryngology of the Abraham Lincoln School of Medicine and the University of Illinois Hospital Eye and Ear In firmary, University of Illinois at the Medical Center, will conduct a continuing education course in Laryngology and Bronchoesophagology November 13 through 18, 1972. The course is limited to fifteen physicians and will be under the direction of Paul H. Holinger, M.D. It will be held largely at the Eye and Ear Infirmary, 1855 West Taylor Street, Chicago, and will include visits to a number of other Chicago hospitals. Instruction will be provided by means of animal demonstrations and practice in bronchosopy and esphagoscopy, diagnostic and surgical clinics, as well as didactic lectures.

Interested physicians will please write directly to the Department of Otolaryngology, University of Illinois at the Medical Center, Postoffice Box 6998, Chicago, Illinois 60680.

SOUTH DAKOTA REGIONAL MEETING
American College of Physicians and South Dakota Society of Internal Medicine

The 1972 combined meeting of the South Dakota Society of Internal Medicine and the American College of Physicians will be held Friday and Saturday, September 22 and 23, 1972 at St. John's McNamara School of Nursing Residence in Rapid City.

The Scientific Program will begin at 1:00 P.M. on the 22nd, and will continue Saturday morning with a panel discussion of treatment of renal disease.

Family Practice physicians, Psychiatrists, Internists, Pediatricians and Pathologists are encouraged to attend this regional meeting.

Internists and family physicians badly needed in Atlanta suburb near third busiest airport in world. New offices available adjacent to new 385 bed South Fulton community hospital.
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Phone: 404-762-8175

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Robert Donahoe, M.D.
101 East 33rd Street
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Phone: Area Code 605-336-1820

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J. T. Elston, M.D. ---------- Rapid City

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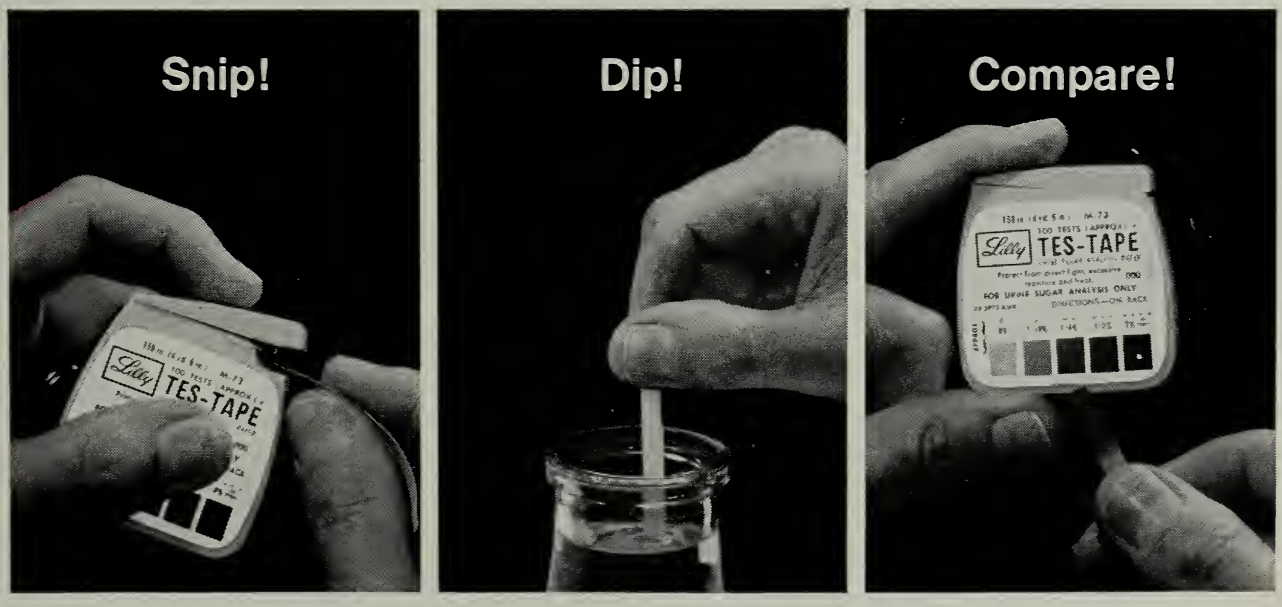

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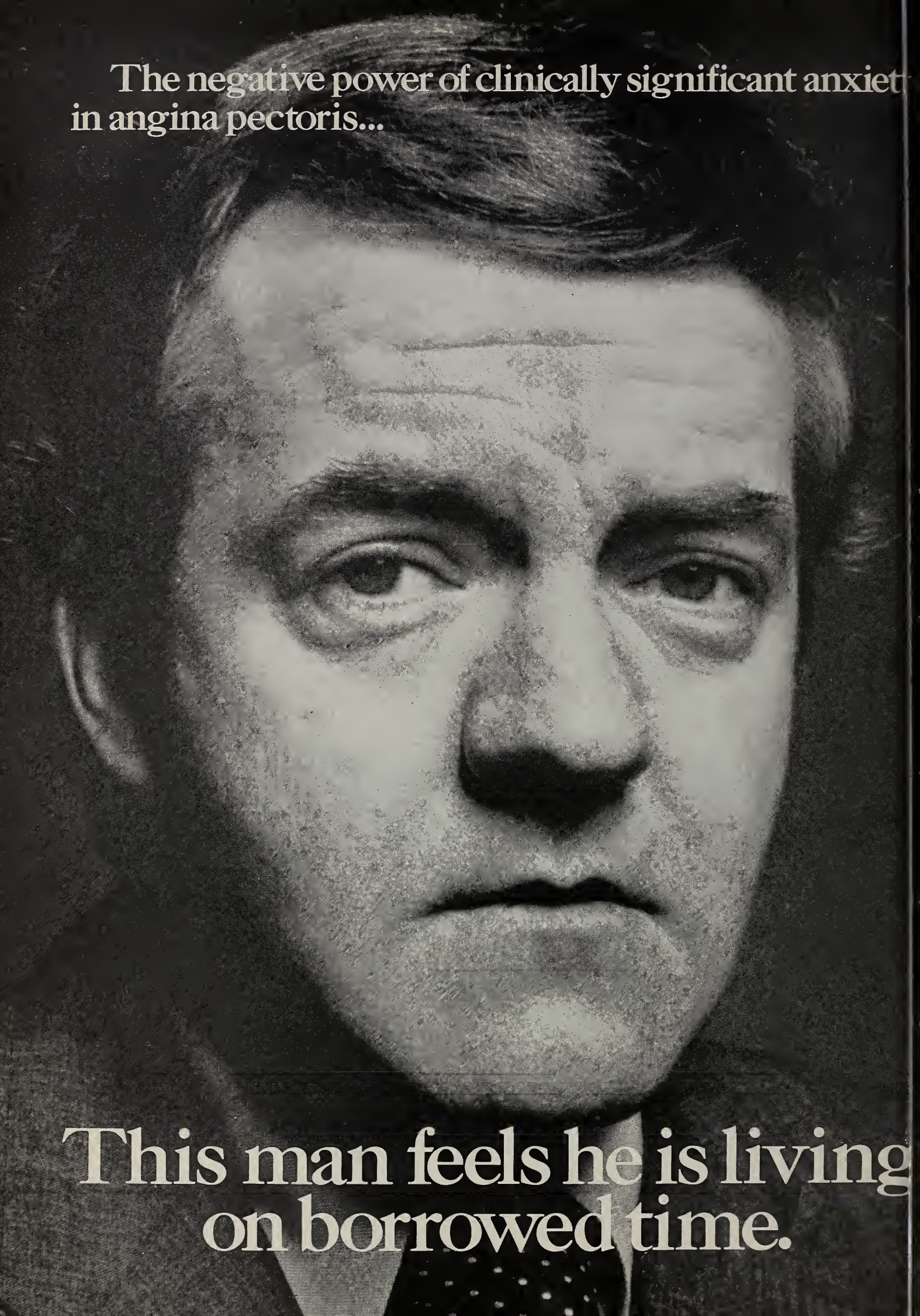
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IMMUNOLOGIC ASPECTS OF CONNECTIVE TISSUE DISEASES

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55901

INTRODUCTION

In order for an immune mechanism to be identified as a cause of a human disease, at least four criteria must be met (1). Firstly, it is necessary to identify the responsible antigen and its respective antibody, or immunoreactive cell. Secondly, one must be able to demonstrate that the antigen and the antibody are reacting together at the site of tissue injury. Thirdly, a model of the disease should be produced in some experimental animal. Fourthly, if possible, the disease should be transferable to a human host or some animal species such as a monkey. As far as the responsible antigens are concerned, autoantigens have attracted the most attention since the discovery of the rheumatoid factor some thirty years ago and its later identification as an antibody against IgG globulin. However, in most of the situations where an immune mechanism has been definitely demonstrated as being responsible for a disease, external antigens have usually been involved. For example, the nephritis that accompanies subacute bacterial endocarditis seems likely to be due to deposition of bacterial antigen and antibody in glomeruli. A similar mechanism has been identified as the cause of the nephritis that accompanies infected ventricularvenous shunts in children with hydocephalus (2). The mechanism responsible for acute poststreptococcal glomerulonephritis still is not entirely certain. On the one hand, Treser and associateshave identified early in this disease both streptococcal antigens and antibodies in the glomerulus and believe that such complexes are the cause of the disease (3). Others such as Markowitz and Rapaport believe that a cross reacting antibody directed primarily at streptococcal antigens but also reacting with antigen native to the glomerular basement membrane may be responsible (4).

Many of the immune diseases due to foreign antigens are self-limited in nature because for the disease to persist a constant source of antigen must be available. One of the reasons that autoimmunity has attracted so much attention is because an unlimited supply of antigen is continually present in the host. The mechanism for autoantibody production is still not entirely certain. A breakdown in natural tolerance must somehow occur. Earlier theories such as that of Burnet based on the concept of the "forbidden clone" (5) are less attractive today since most hosts seem to have an innate capacity to make many auto-antibodies. It may be that under ordinary circumstances, processing of auto-antigens does not occur in the same fashion as that of foreign antigens. Certain auto-antibodies actually occur quite commonly. For example, 98% of individuals have antibodies against a site on the IgG molecule revealed by digestion with the enzyme pepsin (6). An antibody against the third component of the complement, immunoconglutinin, occurs

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very frequently in inflammatory diseases. The rheumatoid factor, originally identified with rheumatoid arthritis, has been found in other diseases, and in fact if one employs a sensitive enough test for rheumatoid factor one can find it in a fairly high percentage of normal individuals, the number increasing with increasing age (7). At the present time more interest is centered on the question of how auto-antibodies produce tissue damage than on the mechanism of how they develop, for it is becoming clear that many auto-antibodies are of little pathogenetic significance.

	11-7-63 Gla. A rr	Controls			
		A rr	A R_1r	A R_1R_1	A R_2R_2
Anti-D	-	-	+++	+++	+++
Anti-C	-	-	++	+++	-
Anti-E	-	-	-	-	+++
Anti-c	+++	+++	+++	-	+++
Anti-e	+++	+++	+++	+++	-
GLA. Ser 9-3-63	+++	+++	++	-	++

Figure 1

Indirect Coombs Test*
*Specificity of the autoagglutinin present in serum Gla. Witebsky, E. Ann. N.Y. Acad. Sci., 124: 463 (1965). (Reprinted by permission)

One of the most clear-cut examples of an auto-antibody producing damage occurs in auto-immune memolytic anemia. Figure 1 taken from a paper by Witebsky is an example of the serologic reactions of the serum of such a patient. Serum was taken from the patient, September 3, 1963, during the course of his hemolytic process. This serum was saved and tested against a battery of cells including the patient's own cells drawn in November after he had gone into remission and his own cells were no longer coated with antibody. It is clear from the table that the patient's cells contained the antigens c and e (Column 1), and that the serum from the same patient drawn in September contained an antibody against antigen c. Another example of a disease produced by an auto-antibody directed against a surface antigen is Goodpasture's syndrome. In this form of nephritis characterized by a linear deposition of gamma globulin along the basement membrane of the glomerulus, it has been possible for Lerner and Associates to actually elute this antibody from the glomeruli of patients with the disease and to reproduce the nephritis by injecting this eluate into monkeys (8).

Case No.	Antinuclear antibody	Anti-γ-globulin*	Anti-A antibody	Anti-B antibody
7--Serum	1:10	0	1:16	1:4
Eluate A	1:50	0	0	0
Eluate B	1:10	0	0	0
9--Serum	1:100	1:128	1:128	1:128
Eluate A	1:50	0	0	0
Eluate B	1:50	0	0	0
10--Serum	0	1:128	0	0
Eluate A	1:10	0	0	0
Eluate B	1:10	0	0	0

Figure 2

Comparison of Antibody Titers in Serums and Glomerular Eluates
*Pepsin-digested human γG-globulin antigen.
Koffler, D., Schur, P.H., and Kunkel, H.J., J. Exp. Med., 126:616 (1967).
(Reprinted by permission)

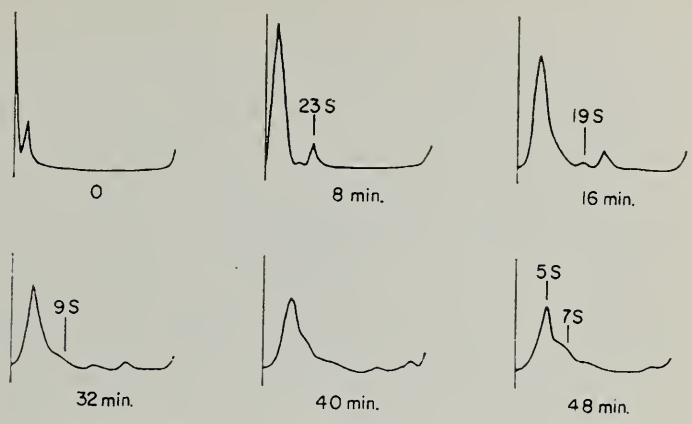
Another mechanism is one that involves the deposition of soluble immune complexes of antigen and antibody in blood vessels or in glomeruli. The nephritis accompanying disseminated lupus erythematosus appears to be an example of such a mechanism. Figure 2 represents data taken from Koffler and Associates. Here again isolated glomeruli have been treated at an acid pH in order to elute gamma globulin. These eluates (eluate A in Figure 2) contained relatively high titers of anti DNA. In patient #10 it was possible to demonstrate the antibody bound by the glomeruli did not simply represent the non-specific deposition of gamma globulin from the serum, since the authors also tested the eluates for anti gamma globulin (rheumatoid factor) and anti A and B antibodies which were present in the patient's sera. The failure to detect these antibodies in the eluates established the fact that the eluates represented specific antibody to DNA and did not simply represent nonspecific deposition of protein from the serum. These workers were also able to demonstrate the antigen, DNA, itself in the same eluates, thus establishing the presence of an antigen-antibody complex. While it is not certain that all of the protein deposited on the glomerular basement membrane represented DNA andti-DNA complexes, the fact that immune complexes are capable of producing nephritis in experimental animals indistinguish-

able from that in lupus strongly supports the hypothesis that SLE nephritis is partly due to DNA anti-DNA antibody.

A third mechanism by which an auto-immune reaction might damage tissues involves a different kind of reaction, one which does not involve circulating antibody. Tuberculin type delayed sensitivity appears to be the major mechanism responsible for the rejection of homografts. Whether it may also produce any spontaneously occurring disease is still a matter of dispute. The most likely candidate for such a role is post-infectious encephalitis of the type sometimes seen after measles. It is possible by immunizing guinea pigs or other species with extracts of spinal cord or brain to produce an encephalomyelitis which can be transferred from one individual animal to another by the means of lymphoid cells but which cannot be transferred by circulating antibody (9). Until recently, investigation of the role of delayed sensitivity in auto-immune diseases has been very much hampered by the lack of good in vitro methods for measuring such sensitivity. The discovery that sensitized lymphocytes from tuberculin positive individuals when incubated with the appropriate antigen, tuberculin, release a substance which interferes with the migration of macrophages on glass surfaces, has provided a useful, semiquantitative assay for this phenomenon (10). In animals developing allergic encephalomyelitis it is possible to demonstrate that lymphocytes release the migration inhibition factor (MIF) on exposure to brain antigens but not to antigens of other tissues (1). There is also some indirect evidence that Hashimoto's thyroiditis may at least in part result from a similar mechanism.

RHEUMATOID ARTHRITIS

In order to focus attention in more detail on a specific example of a possible immune disease, I have chosen rheumatoid arthritis because of its wide prevalence and because of my own interest in this particular disease. The beginning of the study of immune mechanisms in rheumatoid arthritis was of course the discovery of rheumatoid factor in 1942 and its rediscovery in 1948. At the present time all the evidence points to rheumatoid factor representing an antibody or a mixture of antibodies against human IgG immunoglobulin. It probably represents an auto-antibody against an individual's own gamma globulin although it does react widely with the gamma globulin of other



Ultracentrifugation of rheumatoid serum diluted 1:6. 56,100 rpm., 25°C.

Figure 3

McDuffie, F.C., Southern Med. Journal, 58: 1127 (1965). (Reprinted by permission)

individuals and species. Figure 3 represents an analytical ultra-centrifuge tracing from the serum of a patient with severe rheumatoid arthritis and a high titer of rheumatoid factor (12). At 16 minutes one can clearly see the presence of abnormal 23s peak wwhich is sedimenting more rapidly than the normal 19s peak also present. The 23s peak represents a complex of IgM (19s) rheumatoid factor with autologous 7s IgG. At 32 minutes one can see another peak that is clearly distinct from the 7s peak. This abnormal 9s material represents a complex of IgG (7s) rheumatoid factor with normal 7s IgG gamma globulin. Thus, circulating in the serum one can find evidence of the reaction of rheumatoid factor with autologous gamma globulin. Very few sera, however, show such peaks. A few years ago, Bandilla and I examined the reaction of rheumatoid factors from several patients with rheumatoid arthritis against IgG antibodies which these patients had produced against sheep cells (13). Most of these rheumatoid sera did not agglutinate sheep cells coated with their own IgG antibodies, a surprising result if one believes that rheumatoid factor is antibody against autologous gamma globulin. However, we reasoned that the reactivity of the patient's own rheumatoid factor against his own IgG antibodies might be masked by the presence of an excess amount of circulating IgG in his serum. Accordingly, we separated the 19s, IgM rheumatoid factor from the 7s IgG gamma globulin in the serum by means of a Sephadex G-200 column run at an

Source *	Sample †	Sheep cells coated with IgG from individual sources (reciprocal of titer) 1	2	3	4	5	6	7	11	12	SHC test (reciprocal of titer)
1	WS	0	0	0	0	0	0	0	6	0	780
	IgM	80	160	80	0	0	0	0	160	0	690
2	WS	0	0	0	0	0	12	0	0	0	6000
	IgM	80	320	160	20	20	80	0	80	80	2500
3	WS	0	0	3000	0	0	12	0	0	0	1500
	IgM	0	160	1200	6	0	0	0	0	40	640
4	WS	380	0	3000	100	10	10	10	10	10	6000
	IgM	1000	2100	2100	2100	270	2100	540	540	270	4200
5	WS	0	770	24000	0	0	770	0	0	6	6000
	IgM	1540	1540	1540	190	1540	1540	3000	1540	190	12000
6 ‡	WS	6	0	6	0	0	0	6	0	6	0
	IgM	0	30	60	30	0	30	60	0	30	0
7 ‡	WS	0	0	0	0	0	0	0	0	6	0
	IgM	0	25	406	0	0	101	0	400	13	1600
11	WS	6	0	0	0	0	12	0	0	0	0
	IgM	0	0	0	0	0	0	0	0	0	0
12	WS	6	0	0	24	12	0	0	0	12	0
	IgM	0	60	60	0	0	0	0	0	0	0
	Rabbit anti-H-IgG	1280	640	640	640	1280	640	640	640	640	640

Figure 4—Reactivity of Each Whole Serum and of Isolated IgM with Anti-Sheep Cell IgG

*Numbers 1 through 7 = RA patients; 11 and 12 = normal controls.

†WS = whole serum; IgM = isolated IgM fraction, concentration adjusted to equal that in whole serum.

‡Negative for rheumatoid factor by the latex fixation test.

Bandilla, K.K. and McDuffie, F.C., Arth. and Rheum., 12: 77 (1969)
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acid pH to promote dissociation of rheumatoid factor from IgG. In Figure 4 are the results which we obtained from isolated IgM fractions fromrheumatoid patients against sheep cells coated with IgG antibody from the same patient. In each horizontal column we have listed first the results obtained with whole serum for each patient and second the desults obtained with his own isloated rheumatoid factor. The vertical columns represent sheep cells coated with IgG antibodies with the individual patients. Patients 1, 2, 5 and 6 gave negative reactions when their whole serum was tested against sheep cells coated with their own IgG antibodies, but the isolated rheumatoid factor did produce a definite agglutination. The isolated rheumatoid factor of patient 4 gave a much higher titer than his whole serum, and in patient 3, a paradoxical result was obtained, in that the whole serum gave a higher titer. Patients 11 and 12 represented normal controls. In further studies we were able to show that some of these isolated rheumatoid factors seem to react more strongly with autologous than with IgG from other individuals, again, pointing strongly to the fact that they were truly auto-antibodies.

Another line of evidence that the rheumatoid factor represents a hyperimmune response to some unknown antigen was provided by immunization experiments. Figure 5 shows that when we immunized a rheumatoid patient with hemocyanin at the points shown at the vertical arrows there was not only the development of specific antibody to hemocyanin, beginning at the 6th week, but also the progressive increase in titers of rheumatoid factor particularly following the last immunization at 25 weeks (14). Although none of the normal control individuals in our series showed developed rheumatoid factor after immunization with hemocyanin, Aho and co-workers have found that occasionally individuals who receive a regular course of immunization may produce rheumatoid factor (15).

The evidence that rheumatoid factor is an auto-antibody against IgG and that it probably does result from a hyperimmune response to some antigen is well established at the present time. We do not however, yet know what the relationship of the rheumatoid factor itself is

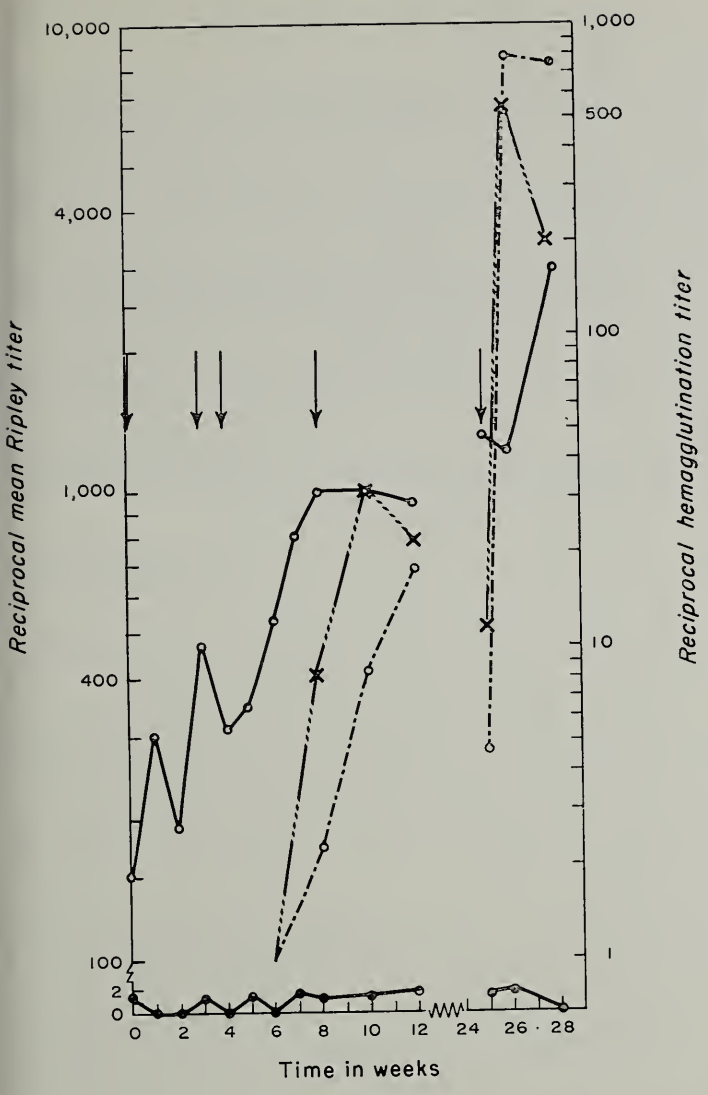

Figure 5

Rheumatoid factor and anti-LPH hemagglutination titers in RA patients (Group 3) (open circles) and controls (solid circles or X's) during course of immunization. Arrows indicate subcutaneous injections of SCS or LPH. RF (solid lines) was measured by SHC test (Ripley); hemagglutinating anti-LPH antibodies (broken lines) were determined by tanned sheep cell technic. Note 10-fold difference in log scales for Ripley titer (0 to 10,000) and hemagglutination titer (0 to 10,000). All sera were negative when tested against uncoated Rh (+) cells.

Bandilla, K.K., Pitts, N.C., and McDuffie, F.C., Arth. and Rheum., 13: 219 (1970)
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to the disease rheumatoid arthritis. Is it directly pathogenic? Restifo and his associates at the University of Pennsylvania have claimed that injection of autologous IgG into joints of patients with rheumatoid arthritis has resulted in a flare-up of disease in the involved joints (16). They have postulated that this flare-up results from interaction of IgG with rheumatoid factor. Several years ago Harris and Vaughan infused high titered rheumatoid factor sera into normal individuals without producing any disease 17. Nonetheless, it is not certain that the rheumatoid factor infused actually did get into joints or into a situation where it could react with some form of antigen-antibody complex. Low levels of complement have been detected in synovial effusions in patients with rheumatoid arthritis, and the lowest levels are nearly always found in patients with high levels of rheumatoid factor. Efforts to identify other antigens than rheumatoid factor and gamma globulin in complexes identified in synovial fluid have so far been unsuccessful. A number of clinical studies have shown that, in general, patients with high titers of rheumatoid factor have severe disease, high levels of immunoglobulins and low levels of synovial fluid complement.

Figure 6
Complement Components as Mediators of inflammation

C'2	Fragment increases vascular permeability (kinin)
C'3	Fragment releases histamine (anaphylatoxin) Fragment attracts granulocytes (chemotaxis) Promotes phagocytosis
C'5	Fragment releases histamine (anaphylatoxin) Fragment attracts granulocytes (chemotaxis)
C'567	complex—Chemotaxis

Though rheumatoid factor may contribute to the complications occurring in these patients, another possibility is that the rheumatoid factor actually represents a host response against whatever is producing the damage. As Zvaifler and Schur have shown, (18) rheumatoid factor may interfere with the fixation of complement, a system which may mediate inflammation, particularly small fragments split off from C3 and from C5 that attract neutrophils (chemotaxis) and release histamine (anaphylatoxin). It is attractive to think that rheumatoid factor, by inhibiting the fixation of complement by immune aggregates, may play some protceive role. Figure 6 summarizes some of the biological effects of complement components. Horwitz and Associates have found that the rheumatoid factor may inhibit the liberation of the chemotactic materials from complement (19). Messner and his associates several years ago found that rheumatoid factors isolated from patients with subacute bacterial endocarditis did inhibit phagocytosis of microorganisms by IgG antibody (20). In our laboratory we have studied the effect of rheumatoid IgM globulin on phagocytosis. In this work we have been examining the phagocytosis of sheep red cells coated with IgG antibody by polymorphonuclear leukocytes. We have found that IgM rheumatoid factor (RF) produces striking inhibition of erythrophagocytosis. Only about

2,000 molecules are required to completely block phagocytosis of red cells coated with 195,000 molecules of IgG antibody per cell. By use of purified labeled complement components we have been able to show that C3, which is the component necessary for phagocytosis, does not bind to cells if RF has been added first. RF does not affect C3 directly but blocks fixation of C1 and C4 which must react first with antibody in order for C3 to become fixed. Thus it seems likely that rheumatoid factor does interfere with complement mediated phagocytosis. To test the idea that the rheumatoid factor has anti-inflammatory "protective" effect on rheumatoid arthritis we have also studied the effect of rheumatoid IgM globulin on immune complex synovitis in rabbits and found that in the proper concentrations it does produce some slight but definite ameliorating effect.

At the present time it appears that the basic underlying cause of rheumatoid arthritis is an agent, possibly a virus, which induces an intense response in the host, an immune response which is unable to get rid of the offending agent. Although no confirmed reports on the isolation of such an agent have yet appeared, some experiments suggest that such may be the case. Grayzel and Beck, for example, have shown that whereas normal synovial cells can act as host cells for rubella virus, cells isolated from synovium from patients with rheumatoid arthritis are unable to be infected, a difference which suggests that the rheumatoid cells may already contain some other virus (21 but see 22). As a result of the intense immune response, complexes of antigen and antibody are formed which fix complement, induce the emigration of leukocytes from capillaries, release lysosomes and result in tissue damage. Rheumatoid factor, at least IgM rheumatoid factor, appears to have some moderating effect on this inflammation. At the moment the most important problem before us is to isolate and identify the underlying agent, whatever it may be.

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Nere J. Sundet, M.D., Kadoka, died at the age of 62 in a Rapid City hospital following a lengthy illness. Dr. Sundet had practiced in Kadoka since 1939 and had served as mayor of that town. He has been cited by both the University of South Dakota and the South Dakota State Medical Association for his community service. Dr. Sundet is survived by a brother, Sherman, of Wilmington, Delaware.

BOOK REVIEW

Call the Doctor

By Polley, Robert F. L. Price $3.00. Parents Handbooks, 1197 112th Northeast, Bellevue, Washington 98004, 1971.

I enjoyed "Call the Doctor." No two pediatricians will agree on the correct approach to parents' questions about their childrens' health and behavior so the fact that I might not agree with Dr. Polley's answers does not detract from the value of the book. There is little doubt that parents would enjoy thumbing through this book and would learn a great deal about a physician's approach to these problems. I think the format of the book is most attractive and the fact that it is written in question and answer form probably avoids dogmatism and fosters constructive inquiry by parents.

RICHARD W. OLMSTEAD, M.D.
Chmn., Pediatric Dept.
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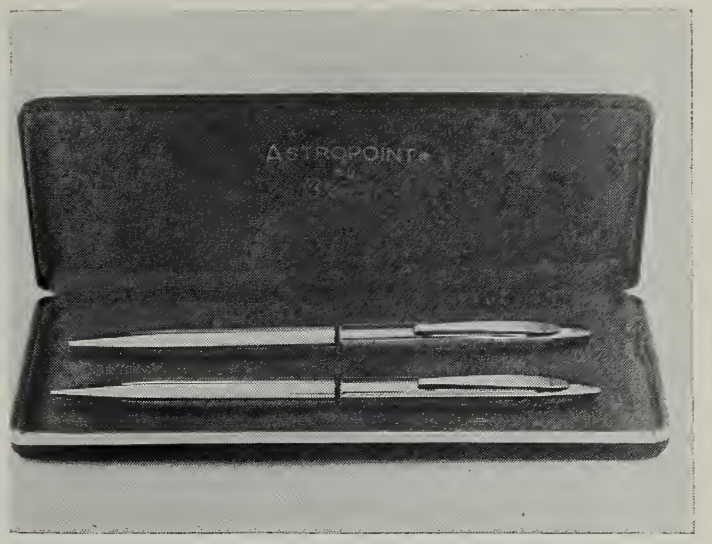

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IMMUNOLOGIC DEFICIENCY SYNDROMES

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In the past two decades, immunologic deficiency states have been detected with an increasing frequency made possible by progress in the understanding of immunologic mechanisms and the availability of in vitro testing systems.

Immunologic deficiency states can be classified into the following groupings: (1) immunoglobulin deficiencies (antibody deficiency syndromes), (2) deficient functioning of the polymorphonuclear leukocytes, (3) deficient functioning of the delayed hypersensitivity system (incompetence of the thymus-dependent lymphocytes), and (4) deficiencies in the complement system. Combined deficiencies of immunoglobulins and lymphocytes function occur also.

A streamlined view of the immunologic system recognizes two main modalities—a population of small lymphocytes which, at an early stage of development, require a thymic influence to achieve immunolgic competence, and an immunoglobulin-producing population of lymphocytes and plasma cells concerned with humoral immunity. Although there is functional interdependence of the two systems, they can be differentiated morphologically, functionally, and ontogenetically.

Scheduled for presentation at the Regional Meeting of the S.D. A.C.P.-A.S.I.M., September 24, 1971, Vermillion, South Dakota.

In avian species this dichotomy is clearest, with the thymus controlling the so-called T-lymphocytes (thymus-dependent lymphocytes) and a separate central lymphoid organ (the bursa of Fabricius), located dorsally to the cloaca, governing the plasma cells and antibody production (B-cells)[1].

The antibodies produced in response to specific stimulation of B-cells may be visualized as being directly noxious to certain microbial invaders and, in addition, as facilitating phagocytosis by polymorphonuclear leukocytes. The antibody system is amplified in its functioning by the complement system. Immunoglobulins are heterogeneous and include five main classes: immunoglobulins G (IgG), M (IgM) A (IgA), D (IgD), and E (IgE). When antibodies of the IgG and IgM classes react with antigens, complement is bound in a predetermined sequence. Nine components of complement have been isolated and purified (C_1 through C_9). The sequence of attachments of the components to antigen-antibody complexes is as follows: C_1, C_4, C_2, C_3, C_5, C_6, C_7, C_8, and C_9. During this cascade process, the components C_3 and C_5 release anaphylatoxins and component C_5 releases a leukocyte chemotactic factor as well, thereby contributing to the initiation of the inflammatory reaction. For cytolysis of microorganisms, all nine components are necessary.

In certain types of infections, particularly those caused by **Diplococcus pneumoniae,** various streptococci, and **Haemophilus influenzae,** the host is highly dependent on the combined functioning of the polymorphonuclear leukocyte, the specific antibody, and the complement system. In other types of infections, of which tuberculosis and the deep-seated mycoses are examples, the main mode of defense is by means of the lymphocytes which act in conjunction with the macrophage system. It is now known that the interaction between specifically sensitized lymphocytes and the corresponding antigen results in the release of several chemical mediators by the lymphocytes. These mediators include a macrophage migration inhibition factor (MIF), a monocytic chemotactic factor, and a cytotoxic factor.

It presently is possible to evaluate a number of immunologic parameters in patients. Total immunoglobulin levels can be estimated by serum protein electrophoresis, and individual concentrations of immunoglobulins IgG, IgM, IgA, IgD, and IgE can be measured by quantitative methods. The ability of a patient to produce specific antibody can be determined by measurement of levels of specific antibody after an appropriate immunization procedure. Skin testing with mumps and **Candida albicans** antigens (agents to which the vast majority of the population has been exposed) allows some degree of overall assessment of the delayed hypersensitivity system (T-cell system). In several immunology laboratories, sophisticated methods are available by which parameters of delayed hypersentitivity can be measured. Available tests include measurement of the incorporation of radioactive thymidine into lymphocytes which are stimulated by a nonspecific mitotic agent (such as phytohemagglutinin) or by exposure of the patient's lymphocytes to specific antigen, estimation of the ability of lymphocytes to release macrophage migration inhibition factor, and measurement of the release of cytotoxic factor.

The nine components of complement can be quantitatively measured in several laboratories. Methods for determination of the phagocyte bactericidal activity of patients' polymorphonuclear leukocytes have also been developed.

The majority of these in vitro testing systems are not readily available to the practicing physician. In this review of immunologic deficiency states, those clinical features which should lead to the suspicion of immunologic aberration will be emphasized. Recognition of an immunologic deficiency is of more than theoretical importance because a number of disorders are amenable to immunologic reconstitution by means of bone marrow or fetal thymus tranplantation whereas other conditions can be treated by substitution therapy with pooled human y-globulin and selective antibiotic therapy.

RETICULAR DYSGENESIS (DE VAAL-SEYNHAEVE SYNDROME)

This disorder is the most serious immunologic deficiency described in man. Children with reticular dysgenesis are readily recognizable by the complete absence of lymphocytes and polymorphonuclear leukocytes. Death has occurred early postnatally due to overwhelming infection. Both the T-cell system and the B-cell system are undeveloped. Normal amounts of y-globulin (of the IgG class) derived from the mother by transplacental passage are present. A stem cell deficiency is considered to be at the root of this developmental abnormality. Such children are candidates for transplantation of fetal thymic tissue and bone marrow.

CONGENITAL ALYMPHOCYTIC AGAMMAGLOBULINEMIA (GLANZMANN-RINIKER SYNDROME, SWISS-TYPE AGAMMAGLOBULINEMIA[2]

An autosomal recessive disorder, this should be clinically suspected in children who, during the first few months of life, have bacterial infections and, commonly, extensive superficial candidosis which may become disseminated. Vaccination with smallpox vaccine results in disseminated vaccinia infection. Lymphocytes are completely or almost completely lacking.

Both the B and T systems are undeveloped, and the condition is thought to be due to a stem cell deficiency.

In a small number of children with this combined immunologic deficiency, immunologic reconstitution has been achieved by thymus and bone marrow transplantations.

CONGENITAL LYMPHOPENIA WITHOUT AGAMMAGLOBULINEMIA (NEZELOF-ALLIBONE SYNDROME)[2]

In this condition the thymic component of the immunologic system is undeveloped but B-cells and immunoglobulin production are more or less developed. In contrast to alymphocytic Agammaglobulinemia, plasma cells are present.

Severe lymphopenia and extensive candidosis are the hallmarks of the syndrome.

Theoretically, bone marrow transplantation may result in immunologic reconstitution.

THYMIC APLASIA WITH APLASIA OF PARATHYROID GLANDS (DiGEORGE'S SYNDROME, III-IV PARYNGEAL POUCH SYNDROME)[2]

The thymus and the parathyroid glands develop embryologically from the third and fourth pharyngeal pouches; the syndrome results from nondevelopment of these structures. Soon after birth, tetany develops due to hypocalcemia. This should be differentiated from other causes of neonatal tetany. Although the thymus is absent or rudimentary, lymphocytes are present in the blood. Close examination of the blood smear reveals absence of small lymphocytes (T-cells). Several cases have been treated successfully by transplantation of a fetal thymus.

ATAXIA TELANGIECTASIA (DENISE LOUIS-BAR'S SYNDROME)[3]

This is a cerebellar ataxia which develops gradually over a number of years. Telangiectases appear about the eyelids, ears, and other areas. The thymus is arrested in an early stage of development. A high incidence of lymphoreticular malignancies has been observed. There is a variable response to immunization with different antigens. A deficiency of IgA is also often present. Sinopulmonary infections may be prominent.

WISKOTT-ALDRICH SYNDROME[3]

Children with this syndrome have frequent pyogenic, viral, and fungal infections. The thymus is morphologically normal but there is a gradually developing deficiency of the modality of delayed hypersensitivity. Plasma cells are present but a low concentration of immunoglobulins (especially IgM) is a common abnormality in the serum. There is a poor response to certain types of antigens only (polysaccharide antigens). Clinically, the association of increased susceptibility to various infections, eczema, and thrombocytopenia forms a recognizable triad.

Some promising results have been obtained by the administration of transfer factor.

IMMUNOGLOBULIN DEFICIENCY[3]

A great variety of deficiencies of immunoglobulins has been described. Although a number of the aforementioned immunologic deficiency syndromes have an associated immunoglobulin deficiency, the disorders to be discussed are primarily characterized by an isolated deficiency of immunoglobulin production. In other words, the T-cell system is not abnormal but an abnormality of the B-cell system is central. It should be emphasized that the so-called idiopathic late-onset immunoglobulin deficiencies, which occur later in life, are much more common than the congenital variety.

Certain characteristics are shared by all patients with immunoglobulin deficiency or antibody deficiency syndromes. Recurrent sino bronchopulmonary infections are the hallmark of the clinical picture. These infections include recurrent bacterial pharyngitis, sinusitis, mastoiditis, bronchitis, and pneumonia. Of practical interest is that the vast majority of these infections are caused by pyogenic bacteria such as **D. pneumonia, H. influenzae,** and streptococci. Occasionally **Staphylococcus aureus** is the offending micro - organism. Notwithstanding their immunologic deficiency, these patterns live in perfect symbiosis with their intestinal flora. The extensive candidosis which is so frequently seen in patients with abnormal delayed hypersenitivity (abnormal T-cell system) is not part of the clinical pattern of infections in patients with isolated antibody deficiency syndrome. Thrush may occur as a complication of antibiotic therapy but is not seen as a primary infection.

CONGENITAL SEX-LINKED AGAMMAGLOBULINEMIA[3]

This form of immunoglobulin deficiency occurs only in boys. During the first few months after birth, these children do relatively well but problems of infection set in when the supply of material y-globulin is exhausted. It should be emphasized that a transient hypogammaglobulinemia occurs in normal infants about the third month and that adult levels of the different immunoglobulin classes are only achieved after several years. In some otherwise normal children there may be a delay of this maturation process. It is therefore sometimes difficult to evaluate an immunoglobulin deficiency before the age of 1 year is reached unless the deficiency is extreme, as is seen in congenital sex-linked agammaglobulinemia.

The antibiotic of choice is ampicillin; one of the penicillinase-resistant semisynthetic penicillins, such as oxacillin (for oral and parenteral use) or methicillin (for parenteral use), can be used in cases of penicillin-insensitive **S. aureus** infection. Human pooled y-globulin (16.5% ±

1.5% solution) is given in a loading dose of 1 ml (0.15 gm) per pound of body weight in divided doses intramuscularly, followed by 0.3 ml (0.05 gm) per pound of body weight every 4 weeks.

If not treated adequately, recurrent bronchopulmonary infections will lead to the development of bronchiectases. Amyloidosis may be a sequela of chronic suppuration. Failure to treat infections of the respiratory tract at an early stage may result in bacteremia and metastatic infections such as meningitis.

SPORADIC CONGENITAL HYPOGAMMAGLOBULINEMIA[3]

This condition is clinically identical to the sex-linked condition but occurs in girls as well as in boys.

IDIOPATHIC LATE-ONSET IMMUNOGLOBULIN DEFICIENCY (IDIOPATHIC LID)[3]

The term denotes a mixed group of conditions characterized by an antibody deficiency syndrome which starts later in life. The peak age at onset is about 20 years, although cases with onset as early as age 2 years and as late as the sixth decade of life have occurred. This is the most common immunologic deficiency in man although still relatively rare. The first task of the physician in the work-up of a patient with late-onset antibody deficiency is to consider a number of possible underlying conditions. It is essential to exclude multiple myeloma (10% of all cases have hypogammaglobulinemia without detachable monoclonal paraprotein in the serum), chronic lymphocytic leukemia (50% of cases have hypogammaglobulinemia), and lymphocytic lymphosarcoma. It also is important to rule out conditions associated with gastrointestinal and urinary protein loss leading to hypogammaglobulinemia.

On several occasions we have seen severe hypogammaglobulinemia in patients with normal total leukocyte counts but with relative lymphocytes in whom a bone marrow examination established the diagnosis of chronic lymphocytic leukemia. A bone marrow examination also is of value in the diagnosis of multiple myeloma. In all patients with hypogammaglobulinemia and proteinuria, a Bence Jones test and urinary protein electrophoresis should be done. In the presence of hypogammaglobulinemia, any suspiciously enlarged lymph node should be biopsied to exclude the possibility of a lymphoma.

Idiopathic late-onset immunoglobulin deficiency is an acquired disease and it is possible to encounter an occasional patient with moderate decrease of serum immunoglobulins who, over a period of a few years of observation, will show progressive deficiency. The extremely low levels or complete absence of all immunoglobulins, as seen in the congenital cases, rarely occurs when the disease is late in onset. However, complete absence of IgA is common in such patients, combined with progressively decreasing IgM and IgG levels.

Several distinct syndromes have been described. Any classification at this time rests on clinical observations because of lack of knowledge of the etiologic and pathogenic mechanisms involved.[4] The most common form of idiopathic late-onset immunoglobulin deficiency is the "simple type" in which there is an antibody deficiency syndrome with recurrent sinopulmonary infection but without any associated abnormalities and an unremarkable family history.

Next most common is what we have designated as the "enteropathic type."[4-6] Patients with this form of the disease have significant intestinal complaints ranging from episodes of watery diarrhea to an overt severe malabsorption syndrome with steatorrhea and severe weight loss. This malabsorption syndrome is not responsive to gluten withdrawal from the diet, and the epithelial cells of the mucosa of the small intestine are not atrophic. In the complete syndrome there also is nodular hyperplasia of the small intestine. These multiple lesions can often be detected by roentgenographic studies of the small intestine or by small bowel biopsy. Nodular lymphoid hyperplasia of the small intestine has been of special interest because its presence contrasts sharply with the complete absence of lymphoid tissue in the small intestine in congenital sex-linked recessive hypogammaglobulinemia.[5, 6] Additional abnormalities encountered by our group in patients with the enteropathic type are atrophic gastritis with achlorhydria, pernicious anemia, carcinoma of the stomach[4-6] (independent of achlorhydria), and frequent occurrence of **Giardia lamblia** infestation of the intestinal tract.[5, 6] Recent observations indicate a high incidence of cholesterol cholelithiasis (PE Hermans, unpublished data). A syndrome designated as idiopathic late-onset immunoglobulin deficiency with pernicious anemia" is most likely a forme fruste of the syndrome as out-

lined above.[4]

Polyarthritis, emphasized in the literature, is in our experience an uncommon association. A different syndrome is that of "idiopathic late-onset immunoglobulin deficiency with thymoma." Some patients appear to belong to the category "idiopathic late-onset immunoglobulin deficiency with familial immunologic dysfunction." Members of the family of such patients have an unusually high incidence of rheumatoid arthritis, disseminated lupus erythematosus, hypergammaglobulinemia, and positive serologic, LE, and rheumatoid factor tests without overt disease.

A rare syndrome is "idiopathic late-onset immunoglobulin deficiency with granulomatous lesions in lymph nodes" (Prasad's syndrome). Lymphadenopathy, splenomegaly, and hyperspenism occur in this group of patients. Idiopathic late-onset immunoglobulin deficiency has also been described in association with agnogenic myeloid metaplasia.

PHAGOCYTE ABNORMALITIES[7]

Chronic granulomatous disease of childhood is a consequence of a lack of release of bactericidal substances from the polymorphonuclear leukocytes into the phagocytic vacuole containing phagocytosed microorganisms. Clinically there are recurrent episodes of infection including soft-tissue abscesses, pneumonitis, osteomyelitis, and visceral abscesses. The abnormal leukocytes appear to be deficient in hydrogen peroxide production, but the exact nature of the metabolic abnormality is not known. It is interesting that the neutrophils of these patients are able to destroy various streptococci by lysis (these organisms produce hydrogen peroxide) but not staphylococci, certain gram-negative bacteria, and fungi which are catalase producers. So, possibly streptococci may initiate their own destruction by producing the hydrogen peroxide which is lacking in the neutrophil of patients with chronic granulomatous disease.

Several varieties of this leukocyte abnormality have now been recorded in the literature, probably with different modes of inheritance and different metabolic defects. One type occurs in male infants and another form of the disease has been noted in young adults of either sex.

COMPLEMENT ABNORMALITIES[8, 9]

Patients with deficiencies of one or more of the nine components of the complement system have been few in number. One may expect additional observations of this modality of the immunologic system as recently developed techniques become available for wider use. Specific instances of deficiencies involving components C_3 and C_5 of the complement system have been noted to be associated with increased susceptibility to infection.

CHRONIC MUCOCUTANEOUS CANDIDIASIS[2]

In this unusual disease, which generally starts in childhood, extensive candidiasis covers the mucous membranes of the oral cavity, the tongue, the pharynx, and, at times, the esophagus. The skin of various sites may be involved, and onychomycosis is common. In one variety of the disease, no underlying endocrine deficiency can be detected and there is evidence for an inability of the E-cells to elaborate macrophage migration inhibition factor.

More commonly, acquired deficiencies of the parathyroid, thyroid, and adrenal cortex in children and young adults are associated in any combination with chronic mucocutaneous candidiasis. Primarily (idiopathic) hypoparathyroidism is the most common underlying endocrinopathy. Such patients often produce antibodies to components of the three endocrine glands listed, even in the absence of overt endocrine failure. Careful studies should always be made of such patients to exclude an endocrine deficiency because failure of detection and therapy may result in sudden death, usually due to an addisonian crisis. On the other hand, patients without the associated endocrinopathy lead a bothersome but nondangerous coexistence with their extensive mucocutaneous fungus infection. Transfer factor has been used successfully in the treatment of a small number of patients.

CONCLUSIONS

Knowledge of the clinical features of most immunologic deficiency states and the execution of a few relatively simple laboratory examinations may lead to confirmation of the suspected syndrome. Therefore, distinguishing clinical aspects of various immunologic deficiency syndromes have been emphasized. Recent developments in the therapeutic approach to a number of immune deficiencies are promising. Thus, early diagnosis and referral to an immunologic center for further confirmation and therapy is of more than theoretical interest.

(Continued on Page 31)

(Continued from Page 26)

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These few articles contain many additional references pertinent to the material described in this publication.

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ST. JOHN'S McNAMARA HOSPITAL
Rapid City, South Dakota

DATE: Friday and Saturday,
September 22 & 23, 1972

PROGRAM COMMITTEE: Ruben J. Bareis, M.D.
Box 3150
Rapid City, South Dakota

ARRANGEMENT COMMITTEE: Ruben J. Bareis, M.D.

PROGRAM

September 22, 1972

8:00 A.M. Registration
9:00 A.M. Business Meeting—South Dakota Society of Internal Medicine, William Rossing, M.D., President, Presiding
12:00 Noon: Lunch
1:00 P.M. - 5:30 P.M. Brief topic presentations
6:30 P.M. Social hour
7:30 P.M. Banquet

September 23, 1972

8:30 A.M. Registration
9:00 A.M. - 12:00 Noon: Symposium—
"Renal Failure"
Robert F. Thompson, M.D., F.A.C.P.
Governor for South Dakota
William Rossing, M.D.
President S. D. Society of Internal Medicine

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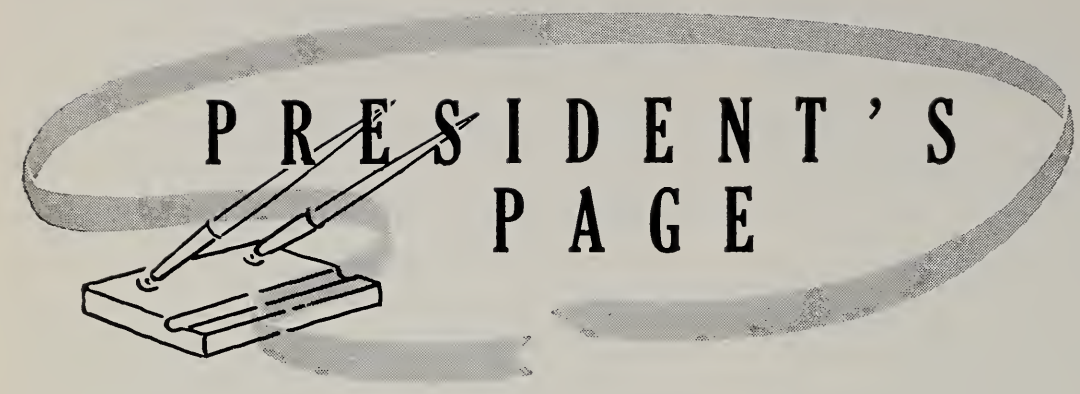

I hope most of the physicians in the state have now become familiar with the Student American Medical Association project, Medical Education and Community Orientation (MECO). For those unfamiliar with the project, it was established as an educational program in community health care institutions for students prior to entering their clinical years of medical training. The project consists of a network of state programs with local control, and national coordination and direction. The over-all purposes of the project as outlined by SAMA are: 1) To expose the preclinical medical student to the "Community" and to the total scope of health care delivery in the community, and 2) To provide a variety of specific educational opportunities for pre-medical students in community hospitals, group practice clinics and other health care delivery. The hospital or group practice clinic provides each student with a $65 to $80 per week stipend and most provide room and board so that the student may live in the community.

The project began in the summer of 1969 with programs in 26 community hospitals involving 70 student participants in the state of Illinois. In 1970 the project was expanded to 80 hospitals and 186 students in the states of Illinois, Iowa, Michigan, Ohio and Wisconsin and in 1971 projects were active in 18 states including South Dakota for the first time. The evaluation of the program performed by participating hospitals, and students following the 1971 program revealed that MECO was successful in meeting its stated goals, and 94% of the participating physicians felt MECO was a valuable educational experience which added to the student's training as a physician and that 65% of the students stated that they would be interested in returning to the same or to a similar community eventually to practice medicine. Sixteen students served in various South Dakota hospitals in 1971 and 28 students are currently involved in the program this summer in South Dakota. The majority of the students are from the University of South Dakota as was the case in 1971.

The 1972 National Project Director of MECO is June Heilman, currently a junior at the University of Rochester School of Medicine, and a 1971 graduate of the U.S.D. School of Medicine.

It is hoped that even more communities and hospitals will become involved in the MECO program in future years and as the pattern of medical education in South Dakota is changing, it would seem that this is a logical means of extending medical education into the various communities throughout our state.

W. R. Taylor, M.D.

CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

JOHN F. BARLOW, M.D., FCAP**
Pathologist-Editor

ROBERT H. QUINN, M.D.*
Surgeon-Discusser

A 51 YEAR OLD CAUCASIAN MALE WITH ONSET OF SUDDEN ABDOMINAL PAIN

CASE NO. 46-4189

This 51 year old Caucasian male entered Sioux Valley Hospital with a chief complaint of severe abdominal pain of nineteen hours duration.

The patient had been in good health until shortly after noon the preceding day when he became nauseated and vomited partially digested food. Nausea continued, but there was no further vomiting. With this there developed constant severe epigastric pain which was accompanied by profuse diaphoresis. The pain continued unabated at night with gradual abdominal distention. He had a normal bowel movement the day before the pain began. He could find no relief with any position. There was no history of previous pain or peptic ulcer. He had had a gallbladder series for "indigestion" some years previously, but no stones were revealed. An upper gastrointestinal series had revealed "duodenitis", but no ulcer. There were no other complaints or significant past history. There was no dysuria or hematuria, and he had recently voided.

Physical examination revealed blood pressure of 118 systolic, 86 diastolic; pulse 120/min and regular; temperature 101°C.; respirations 32/min, rapid and shallow. He was markedly diaphoretic and in severe pain, but lying still. The examination of the head and neck was negative. The lungs were clear to auscultation and percussion. The heart was not enlarged and had a regular rhythm without murmurs. The abdomen showed distention of the upper abdomen with marked muscle guarding and left epigastric tenderness and rigidity. Rebound tenderness was moderate. The bowel sounds were hypoactive. The rectal examination was negative. The neurologic examination was negative.

CLINICAL PATHOLOGY DATA: Urinalysis - orange, cloudy, specific gravity 1.025, pH 5.0, protein 2+, negative for glucose and hemoglobin, ketone 2+, 0-3 leukocytes/HPF, 4-6 finely granulated casts/LPF, amorphous urates and calcium oxalate crystals in the sediment. Hemoglobin 20.9 gm/100 ml., red count 6.70 million/mm^3, hematocrit 63 Vol%, mean corpuscular hemoglobin 31 micromicrograms, mean corpuscular volume 94 cubic micra, mean corpuscular hemoglobin concentration 33%, total leukocyte count 11,000/mm^3 with 64% neutrophils, 19% bands, 14% lymphocytes and 3% monocytes. The red cells were normochromic. Platelets appeared adequate. The serology was nonreactive. Fasting blood glucose was 234 mg%, blood urea nitrogen 97 mg%, sodium 145 meq/L, potassium 4.2 meq/L, chloride 95 meq/L, carbon dioxide content 22 meq/L, amylase 608 units (normal 20-160 units). An electrocardiogram was read as abnormal-sinus tachycardia, ST segment changes compatible with myocardial ischemia. A supine view of the abdomen showed mild adynamic ileus.

DR. BARLOW: Would you like to see the X-ray?

DR. QUINN: Yes, I would.

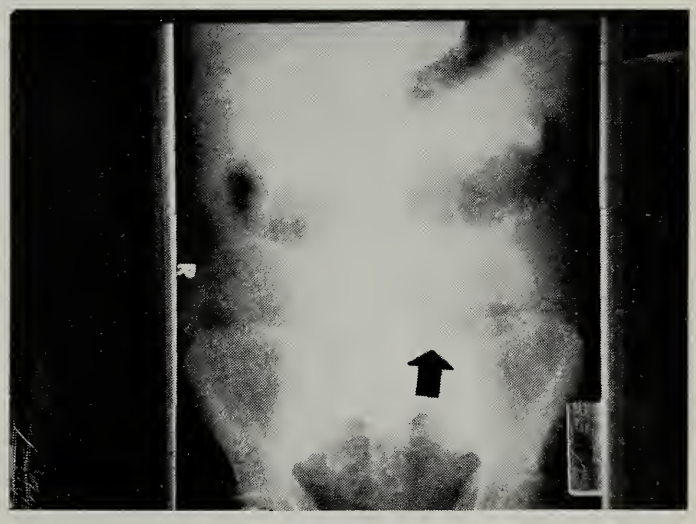

Figure 1
Arrow points to gas filled loops of small bowel—possible "sentinel loops"

*DR. FRANK PETEREIT: The flat plate of the abdomen or supine film unfortunately is non-specific. In one area there are dilated loops of small bowel with gas. (Fig. I) Small bowel gas is quite common in children, but as the patient becomes older you see less small bowel gas. Small bowel gas in adults may be a normal

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Supported in part by Clinical Cancer Training Grant T12 CA 08032 from the National Cancer Institute of the National Institute of Health, U. S. Public Health Service.

*Radiologist, Sioux Valley Hospital

or abnormal finding. Some patients have a lot of air swallowing which can cause small bowel gas. Here it is localized on the left side, which might indicate that there was some inflammatory process going on in this region. Unfortunately, there is only a supine view. I feel, in general, that patients with acute abdomen should have other views, such as an erect and decubitus position if possible. For instance, you might be able to see an air fluid level with these different views, and that might be definite help. This process that we are looking at may be so-called sentinel loop which you can see in the right lower quadrant in appendicitis and in the right upper quadrant in cholecystitis. It is a non-specific finding. A cholecystogram eight years previously showed no abnormality. There was a good outline of the gallbladder.

DR. QUINN: In summary, we have a 51 year old patient with abdominal pain, associated with what appears to be an acute abdomen as indicated by nausea and vomiting. He has a very high hemoglobin and hematocrit. The BUN is elevated. He has 2+ proteinuria and the amylase and sugar are elevated. The elevation of the amylase and sugar in the serum associated with an acute abdomen immediately makes me think about pancreatitis. I should go back to my old bible, Shackleford, a refuge for most surgeons when they are in trouble. Shackleford states very categorically that a patient with an amylase of over 500 with an acute abdomon should be considered as having pancreatitis. He makes this as a flat statement. He notes that in his series, every patient with an amylase over 500 had pancreatitis in contrast to those under a value of 500. This latter group often had acute conditions of the abdomen other than pancreatitis.

Let us consider the other acute surgical conditions in the abdomen. Ruptured ulcer is a possibility. The x-rays are not much help to us here because we do not have an erect film. The abdomen is not described as having a board-like quality which is characteristic of ruptured peptic ulcer. There is no definite ulcer history. The only disease mentioned before was duodenitis. We see these very often, and I do not think it constitutes a positive ulcer history. The x-ray pretty much rules out mechanical intestinal obstruction and so do the bowel sounds which were hypoactive in this case. The urine did not show red cells as you might suspect in a ureteral calculus and the pain was not typical of renal colic. Acute cholecystitis is a possibility, but the patient had x-rays previously which showed no abnormality. The patient did not have the proper type of pain or the proper location of pain for cholecystitis. However, we must consider the coincidence of cholecystitis along with pancreatitis as they are often associated. I had a patient just a few months ago with almost the same amylase level and associated pancreatitis and cholecystitis. In fact, this patient was admitted to the coronary care unit because he had left chest pain as well as left upper quadrant pain. Splenic injury and traumatic injury of the duodenum or traumatic pancreatitis are all ruled out by history and acute diverticulitis is unlikely with the history and physical findings. A ruptured aortic aneurysm would be unlikely with the patient's hemoglobin and physical findings. Mesenteric thrombosis is a good possibility and I would like to come back to that later.

Parotiditis could elevate the amylase, but would not give this picture. The patient had renal insufficiency and this might elevate the amylase. Narcotics will increase the serum amylase. We have no history of the patient receiving any here. Puestow states that in pancreatitis the amylase goes down after 48 hours and lipase goes up during this time. The fasting blood sugar is usually elevated and the white count between 10,000 and 45,000/mm^3. This author says that a high amylase and proteinuria in association with acute abdomen is diagnostic of pancreatitis and you should definitely not operate. He recommends following the patient's course with the amylase. As the amylase drops, the process becomes more quiescent. When it is very high, you have a red hot pancreatitis.

Adams et al have published an article in the June 1968 issue of the **Journal of Surgery.** This came as a great shock to me. Adams found very high serum amylase values without any evidence of pancreatitis. Bernard in the **Journal of Surgery** in 1959 had printed similar findings. Adams reviewed -54 cases with an amylase over 200 units. Of these 154 cases with abdominal pain and hyperamylasemia, 75% showed either isolated pancreatitis or pancreatitis associated with another disease. 25% showed no evidence of pancreatitis. They found that the level of the serum amylase was inversely related to the severity of the disease. This is just the opposite of Shakleford and Puestow, and with what I have been taught.

When the level was over 1,000 there was usually a surgically correctable lesion, according to Adams. This was often acute gallbladder disease while pancreatitis, if present, was of minimal or moderate extent. When the level of the amylase was between 200-500 units the patients usually had isolated idiopathic or alcoholic pancreatitis. In all of their cases of hemorrhagic or necrotizing pancreatitis, the values of the amylase fell between 200-500 units. Therefore these authors would indicate that a very high amylase in association with an acute abdomen should have some surgical intervention.

The very high hemoglobin in this case could certainly be due to polycythemia vera. I do not believe that this very high hemoglobin was due to dehydration. I do not believe that the patient had been sick long enough to get as marked dehydration as would be indicated here. Thrombosis of the mesenteric vessels can certainly occur in polycythemia vera. This patient may have an acute pancreatitis, but I am going to take a chance and say that the patient had primary polycythemia vera and developed a thrombotic tendency with the development of mesenteric thrombosis and small bowel infarction. This can certainly be associated with high levels of amylase.

DR. QUINN'S DIAGNOSIS

1. *POLYCYTHEMIA RUBRA VERA WITH A MESENTERIC THROMBOSIS AND INFARCTION OF SMALL BOWEL.*
2. *ACUTE HEMORRHAGIC PANCREATITIS.*

PATHOLOGIC DISCUSSION

DR. BARLOW: This patient died 50 hours after admission and was not operated upon. He was treated with intravenous fluids and nasogastric suction. At autopsy the striking finding was an acute hemorrhagic pancreatitis. There was 400 cc. of ascites and extensive peripancreatic fat necrosis. This is a picture which shows an example of acute hemorrhagic pancreatitis. The following photomicrographs show pancreatic fat necrosis and hemorrhage into the pancreatic parenchyma in this case. The final anatomic diagnoses were as follows:

FINAL ANATOMIC DIAGNOSES

1. ACUTE HEMORRHAGIC PANCREATITIS WITH:
   A. ASCITES - 400 cc.
   B. PERIPANCREATIC FAT NECROSIS
   C. FATTY METAMORPHOSIS OF THE LIVER, MODERATELY SEVERE
2. CORONARY ARTERY ATHEROSCLEROSIS, MILD WITH:
   A. CARIOMEGALY - 400 GRAMS
   B. PULMONARY CONGESTION
   C. HEPATIC CONGESTION

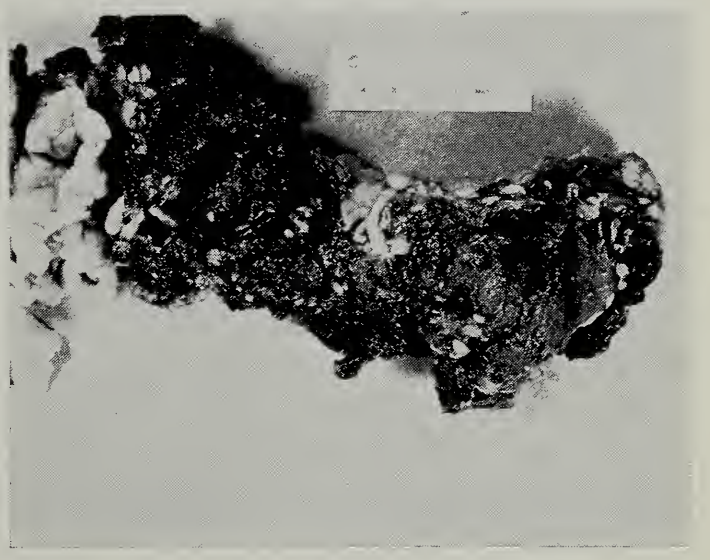

Figure II

Hemorrhagic destruction of pancreas.

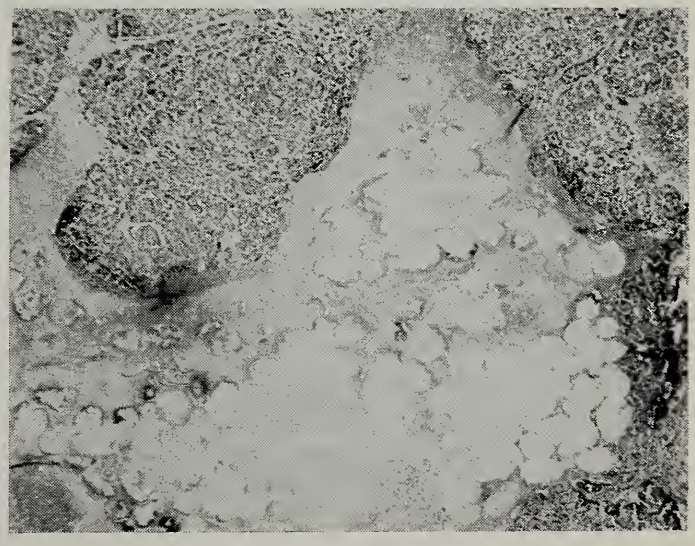

Figure III

Area of fat necrosis in center of pancreas. Viable parenchyma can be seen at edges.

It is to be noted that there were no gallstones in this case. From the history there is no evidence of alcoholism, so this case would have to be classified as idiopathic pancreatitis.

DISCUSSION:

*DR. WALLACE A. ARNESON: I would like to bring out a favorite point of mine. It is stated in the protocol that the gallbladder series shows no stones. It should be noted that gallbladder series often do not visualize in the presence of stones. The use of the words non-visualization of the gallbladder or visualization of the gallbladder with no filling defects should be used, not the description of "negative" or "no stones".

DR. PETEREIT: I heartily agree. Another poor word group used is "nonfunctioning gallbladder" when no dye is seen in the gallbladder. No radiologist uses these words. Whether or not dye is seen in the gallbladder depends on many factors including the dose given, an open pyloric sphincter, absorption from the gastrointestinal tract, a liver which will excrete the dye into the biliary tree, a patent biliary tree, and, finally, function of the gallbladder. So there are many reasons why you may not see dye in the gallbladder after oral cholecystogram.

DR. QUINN: You have some feelings about a double dose after a first oral cholecystogram showing non-visualization, don't you?

DR. PETEREIT: A double dose of oral dye usually does not lead to any further findings, execpt that it makes the patient nauseated. Some have used an infusion cholecystogram with some success.

DR. ARNESON: What about the jaundiced patient?

DR. PETEREIT: I think that use of oral or I.V. cholecystogram if the patient has a bilirubin of 5 mgs% or more is virtually worthless.

I would like to say a few words about x-ray diagnosis of pancreatitis. Radiologically, pancreatitis can be divided into acute and chronic forms. In acute pancreatitis, bilateral pleural effusions of small size are often seen. There may be a widened C-loop of upper gastro-intestinal series or you may see an edematous papilla of Vater. In chronic pancreatitis, the most common thing that you will see is calcification which is diffuse and stippled.

†DR. PITT-HART: Do you have to have a lot of calcification before you can see it on x-ray?

DR. PETEREIT: Yes, you certainly do.

DR. PITT-HART: That has been my impression frequently in cutting across the pancreas with chronic pancreatitis. It is just literally gritty and loaded with calcification, and yet sometimes the x-ray is negative.

**DR. DAVID MERSEY: What about the type of pain in the patient in pancreatitis, and do these patients usually assume a characteristic position in pancreatitis?

DR. QUINN: Yes, they do. They usually assume the so-called knee-chest position with their knees drawn up against their abdomen. In fact, the lack of this is against the diagnosis of pancreatitis in this case.

***DR. ENSBERG: Yes, this is quite striking. It is often as though they had strings in their legs. If you try to straighten them out, they immediately draw their knees back up to their abdomen.

DR. MERSY: What is the reason for this?

DR. ENSBERG: The proposed explanation is that it relaxes the posterior peritoneum over the pancreas, thus causing less pressure on the already edematous organ. My own feelings in this case is that this lack of characteristic position in this patient would be definitely against the diagnosis of pancreatitis.

DR. ARNESON: I agree.

DR. ENSBERG: I do disagree on one statement, and that is that the patient would not dehydrate in this short period of time. Pancreatitis has all of the characteristics of an internal burn. In fact, treatment is very similar. There is tremendous loss of fluid into the retroperitoneal and peritoneal tissues. As a matter of fact, the surface area of the retroperitoneum has been calculated and if 1 mm. of edema only were present, it would account for a tremendous loss of fluid and, therefore, would not be noted.

DR. BARLOW: I would like to cite one interesting case that we had here. This was a patient with known acute pancreatitis who died. We happened to do a blood volume on this patient just before death, and found out that the plasma volume was 20% of normal. The blood volume had been ordered because the physician

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**Intern, Sioux Valley Hospital.

***Surgeon, Sioux Valley Hospital; Clinical Faculty, School of Medicine, University of South Dakota.

could not understand the persistent hypotension in a patient who had several liters of fluid therapy. I agree also that one can lose tremendous amounts of plasma and blood into tissue spaces without it being grossly apparent. Certainly massive fluid therapy is indicated in these cases. We have also had patients bleed to death from pancreatitis from erosion of the large vessels.

*DR. DELWIN K. OHRT: What about the treatment of these patients?

DR. ENSBERG: First of all, I think that the major part of the treatment is restoration of the fluid volume. Do not underestimate the volume of fluid lost. I had a patient recently, an 80 year old woman with pancreatitis, to whom I gave several liters of fluid and never was able to catch up with her fluid loss due to pancreatitis.

The gastrointestinal tract and the pancreas should be at rest by insertion of a nasograstric tube for gastric suction. Atrophine may also be helpful. Antibiotics, steroids are certainly controversial. The use of possible surgical drainage in these patients can be considered but most feel that you should do as little surgery as possible.

**DR. DON KOUGL: What about anti-enzyme preparations?

DR. ENSBERG: I have little experience with these, but those who have used them have found them of questionable value. I should also mention that the patient may go into hypocalcemia due to the precipitation of soaps in his abdomen and this may require calcium therapy.

DR. PETEREIT: I would like to take a few minutes to say a word about abdominal x-rays. I do not think it is true that you cannot get information from a flat plate of the abdomen. You can get a lot of information. However, other views are also necessary as I have mentioned before. The subject always comes up about fluid in the abdomen. I have started to write a few articles in the State Journal. I do this for no intellectual satisfaction of my own, but in an attempt to improve radiology in this area. I have been a little disappointed because I keep running into the same problems. For instance, there is the problem of air in the abdomen. If you have a small amount of air, you are not going to appreciate it. If you have a large amount, you will. You see air fluid levels only if you take different views and you do have to have a fair amount of air in order to see this.

How about fluid? Fluid is notoriously difficult to detect, especially on the flat plate of the abdomen. You hear about the ground glass appearance of the abdomen. Forget it. You can get the same appearance with somebody who is very obese or if the film is poorly penetrated. Estimation of the amount of fluid by separation of bowel loops also is very difficult because it depends not only on the fluid outside the bowel wall, but inside the bowel and how the angle of the x-ray is taken. There is one sign that is very helpful in diagnosing fluid in the abdomen, and this is called the hepatic angle sign. Normally, the liver edge is outlined by properitoneal fat and fat around the colon. Normally in a well-penetrated film you can see the liver edge outline. This angle may stand out well when the patient is erect and the fluid is in the lower abdomen, but is obliterated when the patient is in the supine position. This point is very helpful in diagnosing intra-abdominal fluid. Once again, I would like to stress that several different views of the abdomen will give you more information than just a flat plate.

DR. ENSBERG: Can these studies be done by a portable technique?

DR. PETEREIT: Yes, but they are not as good. The feeling is that if you can move a patient to the x-ray department, you are going to get better studies. If you cannot, then you cannot and you have to get along with a less desirable technique.

†DR. VINCENT CUTSHALL: I think that we will have to make an important point here. One of the major decisions of the acute abdomen is not to operate. I feel that with the exception of the rather striking finding of absence of relief of pain with knee-chest position, the patient does fit an acute pancreatitis. He is a young man and suddenly ill with an acute abdomen. I would put a patient on nasogastric suction and wait at least 24 hours before considering operation.

DR. QUINN: Yes, I certainly agree that the

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**Intern, Sioux Valley Hospital.

†Specialist in Internal Medicine, Sioux Valley Hospital; Clinical Faculty, School of Medicine, University of South Dakota.

patient should not be operated on as put forth in the protocol. I think that any patient with an acute abdomen has to be re-evaluated multiple times in order to come to a proper decision as to what type of surgery is indicated, or if surgery is indicated at all.

DR. CUTSHALL: I was interested that there were no stones in the gallbladder in this patient and that the case is basically that of idiopathic pancreatitis. When I was in Japan, we had a number of cases of acute pancreatitis and we called it X disease. The patient was perfectly well and suddenly had fulminating pancreatitis. Occasional ones were due to ascaris crawling into the bile duct.

DR. PETEREIT: Yes, this is important. Ascaris is the most common cause of pancreatitis in children. I also might mention that frequently a patient with acute pancreatitis will have a non-visualizing gallbladder. I am not sure why this is so.

**DR. ROSSING: We were taught that you should never try to do an oral cholecystogram on anyone for three months after they have had a bona fide attack of pancreatitis. Do you agree?

DR. PETEREIT: Yes.

DR. BARLOW: I would like to discuss a few points about pancreatitis. The disease is not uncommon as a cause of death in this hospital. It seems that we are no closer to more accurate diagnosis, better treatment and greater insight into the disease than we were many years ago. Even so, a review may be in order. Most of my material comes from a monograph by T. T. White.

The following clinical classification was proposed in an international conference in France.

CLINICAL CLASSIFICATION:

1. Acute pancreatitis
2. Recurrent acute pancreatitis (no permanent damage)
3. Recurrent chronic pancreatitis (progressive damage)
4. Chronic pancreatitis (progressive damage)

The second category is not well studied anatomically, but apparently exists clinically. We know very little about the disease pathologically. Therefore, it is probably best to rely on a simple anatomic classification which is related to clinical disease.

PATHOLOGIC CLASSIFICATION:

1. Acute pancreatitis: a) edematous; b) hemorrhagic with or without cyst formation.
2. Chronic pancreatitis fibrotic or calcific with or without cyst formation.

The edematous variety indicates that total recovery can occur. The hemorrhagic variety has a worse prognosis and is associated with necrosis and hemorrhage due to tryptic digestion as well as fat necrosis and calcium soap deposition due to lipase action on tissue.

The etiology is poorly understood. The following factors have been related to pancreatitis: gallstones, the existence of an anatomic common channel for the common bile duct and common pancreatic duct at the ampulla of Vater, alcoholism, and trauma. 15% of cases are idiopathic. The gallstones do not have to be located in the common duct and their association with pancreatitis is very high. However, the mechanism by which gallstones cause pancreatitis is obscure. Alcoholism is mostly associated with recurrent acute or chronic pancreatitis. Again, the relationship is obscure. A direct toxic effect on the pancreas from alcohol has not been demonstrated. Trauma of several varieties causes pancreatitis. This includes surgery, accidents, and posterior ulcers penetrating into the pancreas. The operations which have been associated with pancreatitis are usually related to upper abdominal surgery such as on stomach or biliary tract and direct pancreatic trauma is presumed. The incidence after these operations is considerably less than 1%. However, pancreatitis has followed surgical procedures far removed from the pancreas. Acute pancreatitis associated with gallstones is twice as common as chronic pancreatitis. Chronic pancreatitis is more common in alcoholics. Beside these major factors, all of the following are miscellaneous causes of pancreatitis: Mumps, renal failure, portpartum state, collagen disease, vascular disease, cholesterol emboli, hyperparathyroidims, intestinal parasites (ascaris), and hyperlipemia.

White states that the pain of pancreatitis is usually epigastric, mild to prostrating and reaches a zenith quickly. It is usually the primary complaint and can radiate to the chest or back. There is often no effect from narcotics and food worsens the pain. He describes the characteristic knee-chest position. Vomiting

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worsens the pain. Paralytic ileus is regional at first and then becomes generalized. The patient is often listless and confused. Shock and diaporesis are common. The Cullen sign (discoloration about the umbilicus) and Gray-Turner sign (discoloration of the flank) are late rare signs. In fact, there is a disparity between the severity of the symptoms and paucity of clinical signs. Jaundice is rare.

The complications of pancreatitis include:

1. Electrolyte imbalance - especially plasma loss
2. Internal hemorrhage
3. Pancreatic pseudocyst formation
4. Malabsorption (steatorrhea)
5. Diabetes mellitus
6. Chronic pain

The first two are common causes of death in acute pancreatitis. The last four occur secondary to destruction of the pancreas by acute or recurrent acute pancreatitis.

DR. ENSBERG: It might be well to point out that many patients with recurrent acute or chronic pancreatitis have such severe pain that they become narcotic addicts.

DR. BARLOW: I would like to discuss in particular the common channel theory of Opie. White feels the common channel is not casually related to the development of pancreatitis. A common channel is present in up to two-thirds of people. Bile reflux into the pancreatic duct system is common and is often seen by radiologists. Bile does not activate trypinogen. Many animals (sheep, dogs, goats) have a common channel but do not develop acute pancreatitis. Acute pancreatitis can develop in patients without an anatomic common channel. For these reasons, White feels that the common channel theory with bile reflux into the pancreas is not the etiologic answer in pancreatitis. Certainly finding a gallstone impacted at the ampulla of Vater is uncommon, although dramatic when seen at autopsy or surgery in a patient with pancreatitis. Allergic and vascular factors as well as obstruction of the pancreatic duct by fibrosis are probably rare causes of pancreatitis.

I would like to conclude by discussing the laboratory diagnosis of pancreatitis. Amylase is the most useful test, but it has pitfalls. The difficulty and controversy over what an elevated amylase means has already been pointed out by Dr. Quinn. The amylase also can become normal within about forty-eight hours after the onset of the pain. The lipase is a labile enzyme and probably remains elevated longer, but is also subject to variations. Here are some diseases associated with an elevated amylase:

1. perforated peptic ulcer
2. paralytic ileus
3. acute cholecystitis
4. intestinal obstruction
5. acute appendicitis
6. ruptured spleen
7. mesenteric thrombosis
8. myocardial infarction
9. acute gynecological disease
10. renal insufficiency
11. hepatitis
12. macroamylassemia (benign condition in which amylase is bound to a protein which does not pass the glomerular filter).

I have personally seen extremely high levels after perforated peptic ulcer and mesenteric thrombosis simulating pancreatitis. The urinary amylase is not of much more help, except that urinary elevation of amylase does lag behind the serum amylase. Hyperglycemia and hypocalcemia are non-specific findings, but are helpful in the clinical setting of an acute abdomen, as pointed out by Dr. Quinn.

Thank you for this interesting discussion of a perplexing case, gentlemen.

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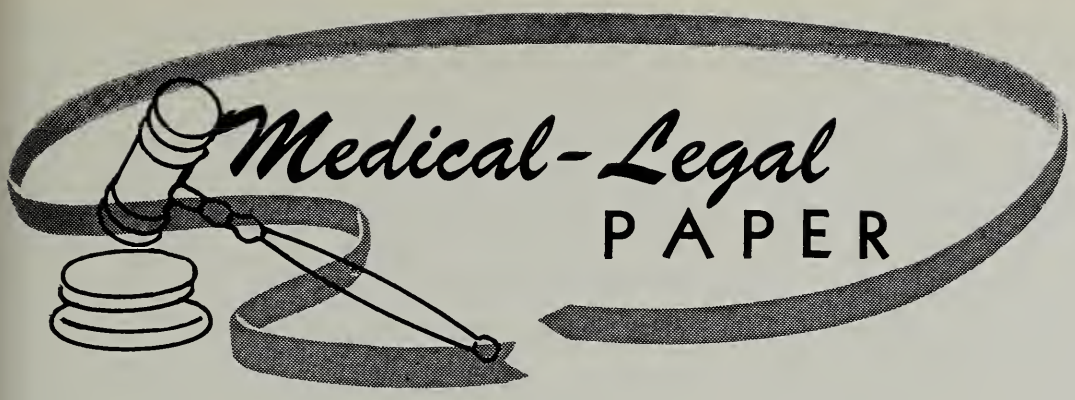

May 4, 1972

Mr. Robert Johnson
711 North Lake Avenue
Sioux Falls, South Dakota 57104

Dear Bob:

You requested figures on our comments on the income and expense of the Basic Science Board. Enclosed herewith I have provided the requested information.

Our fiscal year runs from July 1st to June 30th. Our last complete year was, of course, the 1970-71 year. During this fiscal year the Board had total income and expenses as follows:

86	Examinations	$ 3,010.00	
43	Reciprocities	2,150.00	
64	Endorsements	640.00	
4	Duplicate Certificates	4.00	
623	Renewal Fees	6,230.00	
		$12,034.00	
	Less Refunds	495.00	$11,539.00
	Clerk, Secretary and facilities expense	$ 3,133.22	
	Telephone, supplies, postage	613.73	
	Xeroxing	360.74	
	Board and Travel expense (incl. exams)	2,949.02	
	Bond Premiums	170.00	
	Annual Dues	50.00	
		$ 7,276.71	
	General legal, investigations and prosecution	6,253.94	$13,530.65
	Deficit		$ 1,991.65

COMMENTS ON EXPENSES OTHER THAN LEGAL

In reviewing last year's expenses, other than legal, it is obvious that my office has been subsidizing the Basic Science Board by providing both a Board clerk and secretary at less than our out-of-pocket expenses. Most licensure boards with a similar number of licensees have a full-time clerk or secretary at a salary ranging from $6,000 to $15,000 per year. It should be pointed out that the Basic Science Board secretary is on a half-time basis. The clerk is our full-time head secretary. In addition to the foregoing, they also maintain a full-time office with all the rent, heat, light, and other expenses incidental thereto. This office also furnishes all the equipment used by the Board except a mimeograph machine and typewriter.

The Board expense certainly in no way reflects the value of the services the members render. The five members of the Board receive $10 per day for their work. Each of these is a professional man and therefore their services are largely donated.

In the matter of examinations, if an applicant passes at least three exams he is entitled to be re-examined in the one or two failures without paying an additional fee. Each year we have a number of people taking re-exams. It would therefore appear that the estimate of 100 examinations given a year is reasonable if not conservative.

Examinations are made up by the Board and given to this office. We then cut stencils thereon and do certain scrambling. This is done to avoid cheating, which this Board is painfully aware does happen. The exams are conducted in Vermillion and both the Clerk and Secretary go to Vermillion for the giving of the exams.

We are advised that if we purchased exams in the basic sciences, it would cost us $35 per examination. The cost would therefore be approximately $3,500 a year to purchase the exams, and we would still retain the expense of giving the same and processing them before and after.

We use the computer at Vermillion for grading and the exam grades are available the day after the examinations are completed. This was also pursuant to request of numerous people that the Board make every effort to make grades available as soon as possible.

This office neither sought, nor desired, the responsibility of providing the clerk, secretary, and office for the Board. However, there were many complaints, most of them emanating from the Medical Association about inability to receive basic science information. The Board was requested to have an established office that was staffed. It appeared there was no other way to provide the requested service and we therefore reluctantly accepted this responsibility on the urging of the Board.

On several occasions special examinations are provided for a single practitioner. This has only been done on certification of an emergency by both the public health officer and the South Dakota State Licensure Board of the individual involved. The expense of providing examination to a single practitioner greatly exceeds the $35 received therefor.

There are always legal questions that arise relative to reciprocity and other board matters. Therefore, during the year there are a number of general legal matters that arise that are too numerous to list herein.

In addition to the foregoing work during such fiscal year, this office conducted four investigations of alleged quackery. One of the investigations resulted in a complaint being filed in McCook County, South Dakota, against Roy Gapp. The original information for this prosecution came through the South Dakota Medical Association. The matter was tried and on March 22, 1971, the Circuit Court of and for McCook County South Dakota, entered its judgment in favor of the Basic Science Board.

Our charge for services during the foregoing fiscal year was based upon a rate of $30 an hour for the services of myself and $20 an hour for the services of Gary Richter. These charges are substantially less than charges for work by this office for all except State Boards. It would appear that these charges are also substantially less than money being paid by the State of South Dakota for outside attorney fees to try its own litigation.

I am enclosing an article that was prepared at the request of the Medical Council and sent to the past Executive Secretary of the Medical Association. This article shows that at this time 36 court appearances have been made by the Board against quackery. This is in a period of fifteen years, and two of these years the Board was heavily involved in the cheating scandals and it was not possible to assume any additional responsibilities either physically or financially.

Therefore, since the inception of the Board, the average number of prosecutions per year have approximated three and the average number of investigations conducted number eight or nine.

Prior to this office becoming involved in quackery work, both the Medical Board and the Basic Science Board tried on numerous occasions to stop quackery by court proceedings. Under this system they gathered all the evidence available and presented the same to the Attorney General who in turn sent the same to the local State's Attorney for action. The information we have is that these were uniformly unsuccessful.

The Board had a cash balance on hand at the close of the 1971 fiscal year of $1,879.15 with outstanding checks in the sum of $319.84.

I was asked to meet with the Council of the South Dakota State Medical Association in Sioux Falls during September of 1971. I did. At this meeting I reviewed the financial situation of the Basic Science Board. At the conclusion of this meeting, we were notified that the Medical Council passed a resolution endorsing an increase in the annual renewal fee from $10 to $20. The $10 renewal fee was set in 1955 at a time when the Board had substantially more income from examinations.

The officers of the other two professions licensed by the Board were contacted and a meeting of the Interprofessional Health Council was held in Sioux Falls in December with representatives of all three groups and the Basic Science Board attending. This group passed a resolution that legislation be introduced to increase the maximum renewal fee permissable from $10 to $20. On this basis new legislation was introduced and was ultimately passed.

The $20 annual renewal fee is the maximum

that the Board is permitted to charge and certainly it is presumed that the Board would set the same each year on the basis of its need.

If the foregoing information is not complete or if there are other things you desire, please contact this office and we will try and provide the same.

Very truly yours,
JOHN H. ZIMMER

Report - S. D. Basic Science Examiners

In 1939 the South Dakota Legislature passed legislation requiring every practitioner of the healing arts, except certain named and limited exempt professions, to be licensed to practice the healing arts in South Dakota. The 1939 Act set the following fee schedule for the Basic Science Board:

1. Fee for examination - $15
2. Fee for reciprocal recognition of an examination in the basic sciences in another state of the United States, before a Board of Examiners in the Basic Science - $25
3. Fee for an endorsement of a certificate issued to another state - $5

Following the adoption of this act, the Basic Science Board made a number of attempts to prevent violations of such Act. By 1954, the Board made Nineteen (19) attempts to prosecute persons who were illegally practicing the healing arts without a Basic Science license. None of the attempts were successful.

In 1954 the Executive-Secretary of the South Dakota Medical Association made a survey in the State of South Dakota to determine the extent of quackery in this State. From such survey, he concluded that there were Three Hundred (300) quacks practicing the healing arts full time in South Dakota. It was estimated that their gross income amounted to Three Million ($3,000,000) Dollars per year. Such parties had reached a point where they were advertising in newspapers and one of them, Lilly Hilde of Chester, South Dakota, regularly advertised on KELO-TV.

The persons illegally practicing were primarily designated by themselves as Reflexologists. There were also some parties that called themselves Naturopaths. They maintained regular offices and upon the walls thereof had various diplomas certifying to their qualifications and awarding them doctor degrees. Such practitioners were located in almost every County throughout the State of South Dakota. One County, with a population of 8,268, in 1954 had Eight (8) illegal practitioners practicing full time.

In 1954 the problem was considered such, that a special meeting was called of representatives of the Medical, Osteopathic and Chiropractic Associations. As a result of this meeting, an Inter-professional Health Council was formed to work on this problem.

In 1954 John Foster, the then Executive-Secretary of the South Dakota Medical Association, contacted me as States Attorney of Turner County and stated that the then Attorney General, Phil Saunders, requested that I, as States Attorney of Turner County, prosecute a person illegally practicing in Turner County. The purpose of this particular request was to test the law to determine if law changes needed to be made to strengthen the same or if the numerous defeats resulted from proper handling of the cases.

A paid investigator was sent by the Basic Science Board to the office in Irene of Ingvald Bach. Based upon such investigation a prosecution was started in Turner County which resulted in the first conviction under the Basic Science Law. The jury found him guilty and it resulted in a fine being imposed of One Hundred ($100) Dollars. However, the convicted party, shortly after his conviction, moved to another County and reopened his previous practice.

In December of 1954, I met with the Interprofessional Health Council at Sioux Falls, South Dakota at their request. At that time, I suggested to the Council that one method of successfully combating quackery in the State of South Dakota would be to add injunctive relief to the Basic Science Act and permit the Board to hire an attorney of their choice.

In 1955 efforts to amend the Basic Science law to include injunctive relief by legislation were successful. The amendment also permitted the Board to hire their own legal council. The injunctive relief portion to the Basic Science law became effective July 1, 1955.

In September of 1955 investigators from the Division of Criminal Investigation for the State of South Dakota were sent into the office of Lilly Hilde at Chester, South Dakota for the purpose of obtaining evidence upon which to base an injunctive action. This action was brought in October of 1955. The investigation and record in this case establish that such party had purcased the building and equipment of a former medical doctor in Chester, South Dakota and in 1954 had a gross income well in excess of Thirty Thousand ($30,000) Dollars. The action was successful and the Court enjoined such party from further illegal conduct. Such party attempted to reopen shortly after the injunctive relief was granted. Evidence to this effect was obtained and criminal contempt proceedings were brought against her and resulted in her conviction.

The grandfather of illegal practitioners in South Dakota was a man past Sixty (60) years old, living and practicing in a small town who admitted to the Court during his trial that in the Eight (8) years prior to such trial he had grossed Two Hundred Fifty-four Thousand ($254,000) Dollars. He called himself a reflexologist. His theory was that all nerve endings were in the feet and that by working with the feet and removing calcium deposits, he could cure innumerable ills, including heart trouble and diabetes.

It was obvious that the funds received by the Basic Science Board from examination fees were insufficient to engage in the prosecution of quackery to the extent necessary.

In 1957, the Medical, Osteopathic, and Chiropractic professions requested the Legislature to adopt a Ten ($10) Dollar annual renewal fee for Basic Science Certificates. Such annual renewal fees were designated by the Board for the handling of legal matters arising from violations of the Basic Science Laws.

Since 1955, the Board has investigated numerous quackery complaints. Investigations in some instances were made by agents of the Division of Criminal Investigations for the State of South Dakota working under the Attorney General; others were done by investigators paid directly by the Basic Science Board; and some were conducted based upon complaints of private parties. Based upon surveys and investigations the figures showing Three Hundred (300) quacks grossing Three Million ($3,000,000) Dollars annually appeared conservative. All investigations were conducted through the efforts of the Basic Science Board and fully prosecuted by it with the Secretary of the Board in each case acting as plaintiff.

Since 1955, the Board has conducted more than 100 investigations of persons alleged to be practicing a healing art contrary to Basic Science laws. A few cases involved persons exempt from the Basic Science Act under a limited license who appeared to be exceeding the scope of limited licensure. In several of such cases the party was contacted and agreed to cease and desist any activity infringing upon the Basic Science law. Most of the investigations involved persons holding no license to practice any healing art.

A number of persons investigated were contacted and confronted with the evidence the Basic Science Board had gained as to their activities. A number of these persons stated that they were unaware that they were breaking any laws and agreed to cease and desist their operations without prosecution.

Since 1955 the Board, by its secretary, has appeared as party plaintiff in 36 Circuit Court actions. Each of these cases were fully tried, and the Court en-

tered Findings of Fact and Conclusions of Law, and Judgments therein. In all 36 cases the Board was successful in obtaining the Judgment they sought. A number of these cases involved findings of contempt and resulted in jail terms and fines.

In three instances defendants appealed the Circuit Court Judgments to the Supreme Court. In such appeals the defendants questioned the constitutionality of basic science statutes; the decisions and orders of the Circuit Courts; the Judgments restricting any activity simulating a healing art, including doing massage; contested and refusal of the Court to order a jury trial; and raised various and sundry other law questions. On each appeal the Supreme Court has sustained the lower Court judgment and the basic science laws.

The last case tried in Circuit Court by the Basic Science Board involved Roy Gapp of Salem, South Dakota. This case was tried in 1971, before the Circuit Court of the Fourth Judicial Circuit. In this case the Complaint alleged that on four different occasions Mr. Gapp treated a man from Canova, South Dakota, for a human ill and on two different occasions treated a lady from Canova, South Dakota.

Following trial of the case the Circuit Court held for the Basic Science Board and enjoined Mr. Gapp from engaging in the diagnosis or treatment of a human ill or from offering to engage in, engaging in, or holding himself out in any manner as qualified to diagnose or treat a human ill.

In addition to investigation and prosecution of illegal physical practitioners of the healing arts the Board over the years has had numerous matters involving the sale of fraudulent cures through supposed medicines. One example of these cases was a lady in Hot Springs who was selling a miracle ellixer for Six ($6) Dollars a bottle. One of the bottles was obtained by the Board and sent to the State Lab for analysis. It was found to contain nothing but water with a high mineral content. The report stated in effect that the water was nothing but rusty water. The violating party was contacted on this and upon seeing the report was substantially upset because she had been paying Four ($4) Dollars a bottle plus freight to receive the same from a California salesman.

In addition to the foregoing quackery matters the Board during 1966-7-8 was involved in Court proceedings relative to cheating on Basic Science examinations. Evidence was obtained that cheating had occurred in South Dakota at the last examination in 1966. The cheating was promoted by a professional group stealing examinations throughout the country and selling them to Basic Science candidates for One Thousand Five Hundred ($1,500) Dollars each. Such group operated in numerous states throughout the country.

Prior to 1966 the South Dakota Basic Science Board examinations consisted entirely of essay questions. At that time such examinations were not susceptable to cheating. A change was made in 1966 to multiple choice and true-false examinations to enable correcting to be done by computer. In November of 1966 copies of four of the five examinations to be given were stolen from the trunk of the car of the Secretary of the Basic Science Board by a professional ring involving stake-outs and a professional locksmith. Such persons were unable to obtain the anatomy examination because it was not in the possession of Dr. Kleibacher, the then Secretary of the Board, but was kept at the Medical School by Dr. Rinker. During correction of the examinations it was noted that some parties scored extremely high in four examinations and miserably failed anatomy.

In conjunction with the U. S. District Attorney at Sioux City, Iowa, a full investigation was conducted and criminal prosecutions commenced in Federal Court for conspiracy in the use of the mails to defraud. The ring leaders involved were found guilty by the jury and sentenced. The Court dismissed the charges against those involved solely through buying the examination on the grounds that the criminal conspiracy act did not apply to them.

The evidence disclosed that approximately Thirty (30) different parties were involved in cheating in South Dakota. Part of these persons were persons examined in 1966 and who already had received South Dakota Basic Science Certificates. An action was commenced by the Board to void the certificates of such parties and upon hearing the certificates of parties, upon whom evidence had been obtained, were cancelled. One of the parties appealed to the Circuit Court claiming the Board had no authority to cancel his certificate. Upon a trial in Circuit Court the Court sustained the authority of the Board to revoke.

At this time the Board is in the process of conducting five (5) investigations against persons allegedly practicing the healing arts without a license. Over the years the board has tried to conduct an orderly program, within the funds available, and has made some effort to place them around the state geographically as to have the best effect.

Over the years there have been a number of complaints against the activities of the Board, especially from those practicing illegally, and efforts were made to pass legislation to avoid prosecution by such Board. At one session such persons were successful in getting a bill exempting reflexologists and naturopaths through the Senate and appeared to have a good opportunity of passing the same through the House. At this session Dr. Herbert Ortman of Canistota, South Dakota, was chairman of the House Public Health Committee. Through his efforts it was possible to defeat such bill in committee and a smoke-out was unsuccessful.

On occasion, there have been legislators and licensed doctors in the State of South Dakota who have complained about the Board and indicated a desire to eliminate it. One such effort was made before the Legislative Research Council during the summer of 1968. After a full hearing before the Legislative Research Council such legislative committee, by resolution, determined that the past activities of the Board should be encouraged and continued without charge.

Over the years the Board has received help and cooperation from Doctors licensed by the Board throughout South Dakota. The secretaries and/or executive secretaries of the Medical, Osteopathic and Chiropractic Associations have been especially helpful.

The Interprofessional Health Council consists of three (3) members from each Association, namely, the Executive-Secretary, the President of the Licensing Board and another person designated by the President of the Association. It has, throughout the years, continued to advise and help with the Board programs.

Also, the help given by all Attorney Generals and Rol Kebach, head of the South Dakota Division of Criminal Investigation, has been essential to the work of the Board.

The present Basic Science Board members are:

W. A. Geib, M.D.
Wendell F. Kessler, D.O.
Sheldon J. Christensen, D.C.
Robert Roy Kintner, Ph.D.
Raymond J. Lynn, Ph.D.

The present five Board members, and their predecessors, have spent numerous hours on basic science matters. They receive Ten ($10) Dollars per day for their services. No member, past or present has ever refused to give of his time when Basic Science matters required it.

The fees of the Board previously set forth for examination, reciprocity and endorsement, were the same from 1939 until July 1st of 1960 when a raise, passed in the 1970 legislative session, went into effect. The annual renewal fee set in 1955 remains unchanged.

The professions licensed under the basic science act expressed their desire that the Board investigate

liberalizing licensure by reciprocity or waiver for medical, osteopathic and chiropractic doctors. The Board did so and in 1970, sought and received new legislation permitting the Board to accept by waiver persons who passed examinations given by National Boards, irrespective of the fact that there could be no reciprocity with such National Boards. The act made it possible for persons taking National Boards to submit their grades to the board and receive licensure by waiver. These are done on an individual basis and each applicant is carefully screened.

In 1971, the Board again sought legislation to liberalize the law relative to persons required to have a basic science license to practice in South Dakota. At this time legislation was adopted permitting the Board to waive examination for persons who were licensed and practiced in other States for five years prior to applying for waiver in South Dakota. A number of rules on such waiver were also embodied in the act to protect against persons coming to South Dakota because of professional problems arising in the State from which they came. These applicants are also individually screened.

BOARD FINANCES

From 1959 through July 1, 1966, the Board had an income from examinations, reciprocity, and endorsements averaging $6,027.57 per year. During the same period the Boards examination, reciprocity and meeting expenses amounted to $5,086.89 per year. During this period the Board also had income from the Annual Renewal Fees averaging $6,210. This meant that the Board had available for investigation, procescution and miscellaneous work an annual sum of approximately $7,200 per year.

During this time the Board examined approximately 300 applicants per year.

Most states of the Union have liberalized reciprocity and waiver provisions in their Basic Science Arts. As a result of this, applicants for licensure under Basic Science law by examination have diminished substantially. Where applicants used to take 2 or 3 boards to assure a better opportunity of passing, this is no longer the case. By 1970-71 the number of persons examined by the South Dakota Basic Science Board had diminished to a total of 86. As a result thereof the Board examination, reciprocity, and meeting expenses exceeded income during the period of July 1st of 1966 to July 1st of 1971, by approximately $1500. This was true even though, in 1969, the legislature raised the exam and reciprocity fee schedule.

The annual renewal fee of the Board continued to be $10 per year with approximately the same number of practitioners paying the same. During the 1967-1971 period the funds available for investigation, prosecution, and miscellaneous expenses amounted to $4,670.77 per year. A complete financial report was furnished to all members of the Medical Council attending the fall meeting, itemizing the foregoing figures for each year. The Interprofessional Health Council also received the same.

Therefore, while the expenses of investigating and prosecuting quackery had substantially increased over the 16 year period from 1955 to 1971, the funds available therefore had substantially decreased. The situation was steadily growing worse each year, and the Board had to curtail its work on investigations and prosecutions of quackery.

At the fall meeting, the Medical Council endorsed legislation to increase the annual renewal fee from a sum not exceeding $10 to a sum not exceeding $20. The exact amount of the annual renewal fee to be set each year by action of the Basic Science Board.

The change in the annual renewal fee was endorsed by the Interprofessional Health Council in December of 1971.

The past legislature approved changes in the Basic Science Act to permit the Board to annually set renewal fees at a sum not to exceed $20.

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INTERSTATE SCIENTIFIC ASSEMBLY

The 57th Annual Scientific Assembly of Interstate Postgraduate Medical Association will be held November 13-16 at the Washington-Hilton Hotel, Washington, D.C.

The program, primarily designed for Family Physicians and Internists, is an educational service providing a diversified lecture program, "live" Television, medical motion pictures and panel discussions. Special symposia are included in the program.

The meeting is open to any licensed M.D. in the United States or Canada. The fee is $25 for 26 hours of instruction, which provides credit for members of the American Academy of Family Practice who attend.

Those interested in further details and registration forms should write to Alton Ochsner, M.D., Program Chairman, Interstate Postgraduate Medical Association, P.O. Box 5445, Madison, Wisc. 53705.

ANNUAL MEETING ON ANTIBIOTICS AND INFECTION

The Third Annual Meeting on Antibiotics and Infection will be held at the University of Iowa on Thursday, Friday, and Saturday, October 26th, 27th, and 28th. As well as 30 speakers from the University of Iowa Faculty, there will be five guest speakers: Dr. Elisha Atkins of Yale University Medical School, Dr. King K. Holmes of the USPHS in Seattle, Washington, Dr. Calvin M. Kunin of the University of Wisconsin, Dr. William R. McCabe of Boston University, and Dr. David H. Smith of Harvard Medical School. Inquiries should be made to Dr. Ian M. Smith, Department of Internal Medicine, University Hospitals, Iowa City, Iowa 52240

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This is your MEDICAL ASSOCIATION

John F. Barlow, M.D. and **Durward M. Lang, M.D.**, both of the Laboratory of Clinical Medicine in Sioux Falls, have been notified that both have passed the board examinations in Nuclear Medicine and that both are now certified "Diplomates of the American Board of Nuclear Medicine with special competence in all aspects of the diagnostic, therapeutic and medical research uses of radioactive materials". This new Specialty Board was created within the past year and the examination was given for the first time in Denver in March, 1972. Dr. Barlow is Professor of Pathology, School of Medicine, The University of South Dakota, and Dr. Lang is Clinical Associate Professor of Pathology.

* * *

The Fort Meade Veterans Administration has announced the addition of three physicians to its hospital staff. They are Z. G. Tillo, M.D., a psychiatrist formerly from Stanford, Montana; Melvyn Yokan, M.D., a psychiatrist from Butte, Montana; and Thomas Marvin, M.D., a psychiatrist from Willmar State Hospital in Minnesota. Dr. Marvin previously practiced in Faulkton, South Dakota for 21 years.

* * *

John P. McCann, M.D., Parkston, has been re-elected to membership in the American Academy of Family Physicians.

Richard A. Kovarik, M.D., Rapid City, was featured speaker at the first annual meeting of the South Dakota Right to Life Corporation held in Pierre. Dr. Kovarik spoke on "Some Personal Observations of the Abortion Movement."

* * *

Douglas E. Leeland, M.D. has been placed in Clear Lake by the National Health Service Corp. and will be associated with **H. Dean Hughes, M.D.** Dr. Leeland is a graduate of the University of Washington Medical School where he also interned.

* * *

The Chamberlain Kiwanis Club honored **L. W. Holland, M.D.**, for his 25 years of practice in Chamberlain and his community work.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

Kumud Shinghal, M.D. and Pramod Shinghal, M.D. have joined the Bormes Professional Association in Aberdeen. Dr. K. Shinghal specializes in obstetrics and gynecology and Dr. P. Shinghal is a general surgeon.

* * *

Thomas Ward, M.D., assigned to the Sisseton area by the National Health Service Corps, will also open a clinic in Veblen.

* * *

The University of South Dakota School of Medicine has received word of the renewal of a Clinical Cancer Training Grant in the amount of $23,616 which will cover the period of July 1, 1972 through June 30, 1974. The program focuses principally at the undergraduate medical student with a broad-based series of lectures, seminars and symposia by visiting faculty, tumor clinics, bedside teaching and laboratory exercises in the diagnosis of neoplastic disease. **Karl H. Wegner, M.D.**, Chairman of the Department of Pathology, is the coordinator of this training grant.

* * *

The Miner County Young Women's organization presented a commemorative plaque to **Roman Hura, M.D.**, Howard, for his sincere and devoted efforts in behalf of the Howard community.

DIRECTORY

THE SOUTH DAKOTA STATE MEDICAL ASSOCIATION

Organized 1882 — 711 North Lake Avenue
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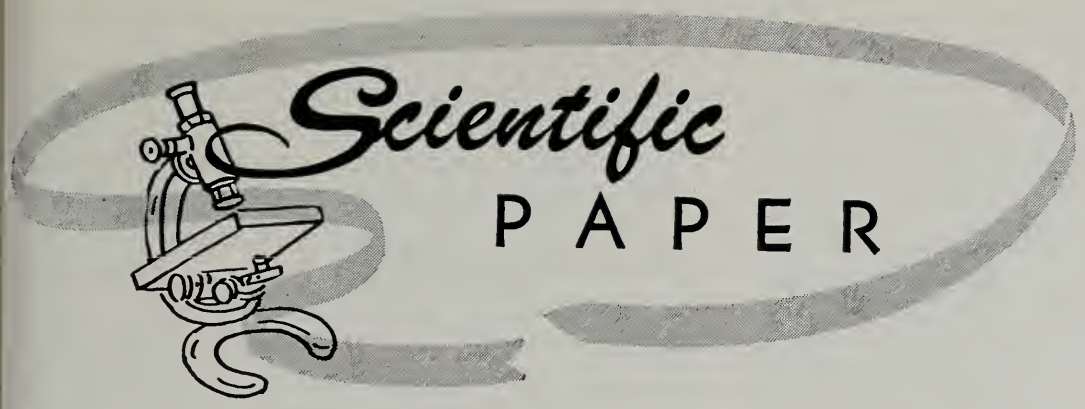

TREATMENT OF CARDIOGENIC SHOCK I*

BY

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Although the treatment of cardiac arrhythmias following a myocardial infarction has decreased in-hospital mortality, cardiogenic shock remains a major cause of death. The mortality rate of cardiogenic shock is still in the range of 75 to 80 per cent. It is estimated that over 100,000 individuals die yearly in the United States with this syndrome. The clinical profile of the patient with cardiogenic shock is familiar. At some point after sustaining a heart attack the blood pressure starts to fall and is usually no greater than 80 mm. Hg. systolic. A tachycardia of 120-140 beats per minute is quite usual. The skin color is a dusky cyanotic gray and the patient is markedly diaphoretic. Urine output falls and the patient's sensorium becomes clouded. He will often be barely arousable or may be quite irrational. Terminally, ventricular tachyarrhythmias or heart block may occur.

If any one form of therapy had proved to be successful there would be little controversy concerning the proper medical therapy for this condition. Since the mortality is so high there have been many forms of therapy advocated. Since there is no uniform agreement concerning therapy the following approach is one which the author accepts as a generally reasonable one. It is axiomatic that therapy must be individualized for each patient and that no patient should receive a predetermined regimen.

*Prepared by the South Dakota Heart Association for this Journal.

The principles of therapy for cardiogenic shock follow from the pathophysiology of this condition. There is increasing evidence that the major factor leading to cardiogenic shock is an inability of the left ventricle to perform adequately as an effective pump. In almost all cases cardiac output is markedly diminished. Similarly, the hypotension which is a hallmark of this syndrome is in large part a consequence of low cardiac output. Since a critical pressure is necessary to maintain coronary filling, the hypotension has deleterious effects upon coronary filling and this in turn leads to further deterioration in the ability of the heart to support the circulation.

The two goals of therapy for this condition are:

1. To increase the cardiac output and
2. To raise systemic blood pressure

Both of these goals could be achieved if the left ventricle were helped sufficiently to augment its contractility.

GENERAL CONSIDERATIONS

Since cardiogenic shock has such a dreadful prognosis, any patient with this syndrome should be treated in a specialized facility capable of handling the intricate problems that arise. Adequate bedside and central nursing station electrocardiographic monitoring should be available. An intravenous line capable of measuring central venous pressure should be present and fluids and medication may be ad-

ministered through it. Although it is desirable under certain circumstances to be able to directly record arterial pressure through the use of a strain gauge and pressure transducer this latter intervention is not absolutely essential.

The measurement of central venous pressure may be important in unmasking hypovolemia as a contributory factor to the shock. With the widespread use of diuretics in cardiac patients it is not unusual for the patient who sustains a myocardial infarction to have the problems of hypovolemia added to those of pump failure. Although it is well recognized that the central venous pressure may be totally normal, even if the patient is in pulmonary edema, knowledge of the central venous pressure does help management. If the central venous pressure is low or normal and if the patient is not in gross left sided congestive heart failure with rales, dyspnea and roentgenographic evidence of pulmonary edema, judicious fluid therapy may be extremely valuable in reversing the state of circulatory failure. By taking advantage of the fact that as left ventricular and diastolic pressure and volume increase, so will left ventricular work and stroke output, a trial of 250 ml. of isotonic saline or low molecular weight dextran may be tried. If this improves the circulatory state, then another 250 ml. may be given. At times a simple therapeutic maneuver such as fluid administration may be of great help in relieving many of the manifestations of this syndrome.

If central venous pressure is elevated in the absence of cor pulmonale, there is generally little chance that fluid administration will be helpful and the danger of causing pulmonary edema increases.

Other general principles such as oxygen administration and adequate pain relief will not be commented upon in this review other than to mention them. Pain, such as that which may occur with a myocardial infarction, may often lead to vagal reflexes which potentiate hypotension. Sufficient analgesia should be given to alleviate pain completely.

DIGITALIS GLYCOSIDES

There is considerable controversy concerning the role of digitalis glycosides in the syndrome of cardiogenic shock. The argument usually cited by physicians who are reluctant to utilize digitalis is the recognized potential of digitalis to cause ventricular arrhythmias. More recently, it has been shown that any intervention which increases the velocity of myocardial contraction also increases myocardial oxygen consumption. One of the actions of digitalis is to raise the velocity of contraction and therefore it may raise myocardial oxygen consumption. It has been demonstrated that areas of myocardium which are marginally oxygenated following an occlusion of a coronary artery may become necrotic instead of ischemic if myocardial oxygen consumption is augmented. However, if one accepts the thesis that the primary abnormality in cardiogenic shock is a marked depression of left ventricular contractility, then digitalis therapy becomes a very rational means of trying to restore circulatory integrity. Unfortunately a controlled study of digitalis therapy in cardiogenic shock is still not available.

It is the author's practice to administer digitalis early in the course of cardiogenic shock if the patient is not already taking this medication. The onset of action and peak effect of intravenous digoxin are such as to make it a perfectly reasonable drug to use. Between 1.0 and 1.5 mg. digoxin is given intravenously in approximately a 2 hour period in doses of 0.25 mg. every fifteen or twenty minutes.

It should be noted that pulmonary venous congestion or other signs of left heart failure need not be present in a patient with cardiogenic shock. The author feels, nonetheless, that digitalis plays a role in the therapy of the patient in cardiogenic shock. It should be recognized however that this form of therapy is not agreed upon uniformly.

VASOPRESSORS

The most easily recognizable feature of cardiogenic shock is hypotension. A variety of agents are available to raise arterial blood pressure. The sympathomimetic amines have received considerable use. These drugs have been classified into alpha or beta stimulatory agents. Alpha adrenergic drugs act primarily on the peripheral arterioles and raise blood pressure by increasing peripheral resistance. Included in this group are methoxamine (Vasoxyl) and phenylephrine (Neo-synephrine). A second category of drug not only stimulates alpha adrenergic receptors in the peripheral arterioles but also stimulates beta adrenergic receptors in the myocardium. Metaraminol (Aramine), nor-eprinephrine (Levophed) and epinephrine are examples of this type of agent. An example of a sympathomimetic amine

which has only beta stimulating effects is isoproterenol (Isuprel). Since isoproterenol acts as a peripheral vasodilator it does not appropriately fall into the category of a vasopressor, although it is a sympathomimetic amine.

Although raising the blood pressure is generally considered an appropriate goal in the treatment of a patient in cardiogenic shock, the issue is not quite that simple. Since most filling of the coronary arteries occurs in diastole, the coronary arteries do require a certain level of pressure in the central aorta in order to fill. Myocardial function is dependent upon adequate coronary bloodflow and will deteriorate in the presence of inadequate perfusion pressure.

It has been shown, however, that drugs which act only on the peripheral arterioles, thereby raising blood pressure by elevating peripheral vascular resistance, may have a deleterious effect upon patients in cardiogenic shock. If left ventricular function is sufficiently impaired to place a patient into cardiogenic shock, increasing the resistance against which the left ventricle must pump may further decrease cardiac output.

For this reason, drugs which act solely on the peripheral vasculature such as methoxamine or phenylephrine have little or no role in the therapy of cardiogenic shock.

Agents which act both on the beta receptors of the myocardium and the alpha receptors of the periphery have been used most extensively. It is wise to use as little of these agents as are necessary to maintain an adequate perfusion pressure and it is also advisable to give these agents by intravenous drip rather than intramuscularly. By so doing, blood pressure can be titrated more precisely. It is not necessary for the blood pressure to be brought to normal levels. A systolic blood pressure of 90-100 mm. Hg. is usually adequate. It is the author's practice to place 50 mg. of metaraminol in 500 ml. of 5 percent dextrose in water. This is infused at a rate sufficient to elevate blood pressure the desired amount.

Nor-epinephrine (Levophed) is another sympathomimetic amine which has potent effects upon both the periphery and the central circulation. Although blood pressure can generally be raised by an intravenous drip of norepinephrine, experience indicates that relatively few patients survive if it becomes necessary to use this drug in order to sustain blood pressure.

GLUCAGON

Glucagon, a hormone which has been shown to raise blood sugar has also been utilized recently in patients with cardiogenic shock. Although its mechanism of action is not known precisely, it does have the property of increasing cardiac contractility, possibly by augmenting the synthesis of cyclic AMP. Initial studies of this agent in the animal laboratory and in the human cardiac catherization laboratory led to some enthusiasm for its use in patients with myocardial infarction and shock. Other than for some anecdotal reports of its efficacy this agent has generally been disappointing in the treatment of this condition and has generally been abandoned as a useful therapeutic agent.

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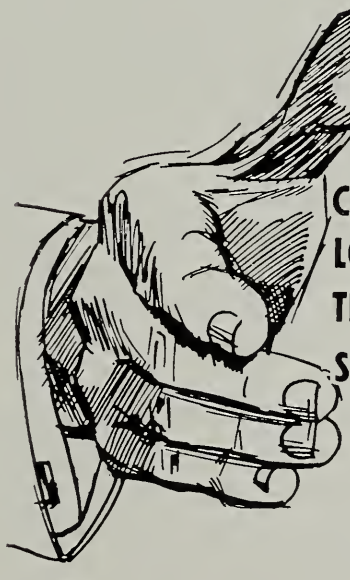

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PULMONARY CRYPTOCOCCOSIS*

S. Sochocky, M.D., F.C.C.P.

Department of General Medicine, Veterans Administration Center, Sioux Falls, S. D.

Cryptococcosis occurs in man and animals and is caused by the fungus Cryptococcus neoformans. Cryptococcus neoformans is thick walled, 5-10 microns in diameter, about the size of a red blood cell. This fungus exists as a saprophyte in soil and vegetation, but excreta of pigeons and other birds are chief sources of Cryptococcus neoformans. It also has been isolated from throat and skin of healthy individuals. The pigeon handlers often have a much higher incidence of cryptococcal infection than non-handlers. Cryptococcosis results from inhalation of this yeast like fungus.

Cryptococcosis is not contagious and there is no evidence that disease may spread from animal to man, or man to man. Disease may occur at any age, or in either sex; commonly between 40 and 50, more often in males than females. According to Littman[1] et al. cryptococcosis is found more frequently in patients with Hodgkin's Disease, lymphosarcoma, diabetes mellitus and in those who receive prolonged therapy with steroids. In a series of 60 cases of Zimmerman and Rappaport[2], 30 per cent of patients had Hodgkin's Disease. Cryptococcosis is a world-wide disease and its incidence in the United States is secondary to histoplasmosis as the cause of death due to fungus diseases.

Following inhalation of fungus into lungs, the organism may become localized or disseminated by hematogenous route to any part of the body most commonly to central nervous system. Isolated lesions of skin and bones without involvement of central nervous system or lungs have been described.

CLINICAL MANIFESTATIONS

Signs and symptoms depend on type, stage and system of body involved. Pulmonary infection may be asymptomatic and may be found on routine chest films. Pulmonary cryptococcosis also follows a subacute or chronic course and may cause signs and symptoms of a mild degree. The patient may have a cough, chest pain, weight loss, low fever, hemoptysis, shortness of breath, night sweats and generalized malaise. Physical findings in pulmonary cryptococcosis depend on degree of involvement of lung tissue but are not remarkable. There may be rhonchi, rales, bronchial breathing, fever and loss of weight.

Cryptococcal infection of central nervous system may cause clinical manifestations characteristic of meningitis, meningo-encephalitis or granuloma — a space occupying lesion. Cryptococcal meningitis usually starts insidiously with headache, becoming progressively severe and is also associated with nausea, vomiting and changes due to increased pressure of cerebrospinal fluid. The fulminating cases of cryptococcal menigo-encephalitis may be of short duration, lasting about 2 weeks and ending fatally.

According to Greer[3], in 148 cases of cryptococcosis, central nervous system was involved in 58, lungs 44, central nervous system and lungs 17, generalized (central nervous system, lungs and other sites) in 9, lungs and other

*Seventh and last article on fungus diseases of the chest.

sites besides central nervous system in 6. According to the same author, in 97 cases of cryptococcosis there were symptoms applicable to central nervous system, as headache, fever, neck rigidity in 66 cases and paralysis was present in 13 cases. In 24 cases of pulmonary cryptococcosis, cough, chest pain, and hemoptysis were predominant signs and symptoms.

RADIOLOGICAL FINDINGS

There are no pathognomonic findings. A chest film may show solitary or multiple nodules, lobar consolidation and/or atelectasis, cavitation with thick or thin walls, hilar adenopathy, pleural effusion or pneumonic infiltration. Bilateral lesions are often present and upper lobes are more frequently involved. In disseminated form, the chest film may show miliary lesions similar to those found in pulmonary tuberculosis.

LABORATORY DATA

Urinalysis is not remarkable — occasional red blood cells, granular casts, albumin present in urine. According to various authors, complete blood count varies, white cells count 9,000 on average, lymphocytosis is not uncommon. Sedimentation rate elevated in most cases. Pressure and white cells, especially lymphocytes, in cerebrospinal fluid are increased in most cases.

Cryptococcus neoformans is found in sputum, bronchial aspirate, cerebrospinal fluid, pleural fluid and in tissue obtained either at operation or autopsy by direct examination and cultures. However, the organism has been recovered from the mouth, pharynx, and skin. It is possible that sputum may be contaminated with Cryptococcus neoformans. Winston Warr[4] et al found Cryptococcus neoformans on culture from sputum, bronchial washings, and pleural fluid of 17 patients, 9 of whom were thought to have cryptococcal pulmonary disease; of 9, 6 were not treated with amphotericin B and all but one were subsequently negative on culture.

A satisfactory skin test has never been developed. Serological test for cryptococcosis had limited success in the past. However, with introduction of newer methods the investigations were able to demonstrate the presence of free cryptococcal antigens as well as antibodies in the body fluids of patients with cryptococcal infections. According to Warr[4] et al the most sensitive specific test for circulating antibodies is Vogel's indirect fluorescent technique. According to Emil J. Bardana[5] et al the latex agglutination test is a reliable method for establishing diagnosis as well as an indication of clinical progress. Tissue examination is of clinical value in diagnosis of pulmonary cryptococcosis. The tissue reaction varies — there may be lymphocytic infiltration with or without necrosis, fibrosis, granuloma and giant cells may be found.

Diagnosis:

In differential diagnosis of pulmonary cryptococcosis almost any pulmonary disease should be taken into consideration. The other fungus infections of lungs such as coccidioidomycosis, histoplasmosis and blastomycosis as well as pulmonary tuberculosis, and benign or malignant tumor of lungs should also be taken into consideration. Cryptococcosis of the central nervous system may be confused with tuberculous meningitis. In both diseases spinal fluid may show white cells count and protein content increased but glucose and chlorides decreased. Diagnosis between tuberculous meningitis and cryptococcal meningitis should be based on demonstration of either tubercle bacilli or fungus in spinal fluid. In the central nervous system, the cryptococcosis may simulate a space occupying lesion and the patient may develop paralysis of cranial nerves, legs, and arms, blurred vision, and other signs.

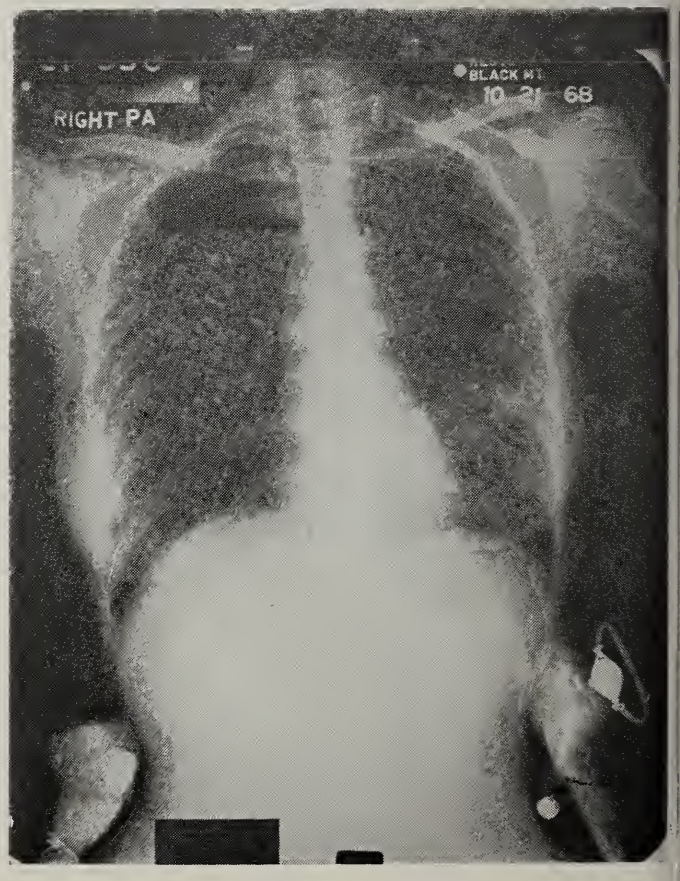

Figure 1

Chest X-ray 10.21.68 shows a pneumonic infiltration in subapical segment of left lower lobe.

ILLUSTRATIVE CASE

This 46-year-old white female was admitted to hospital on 10.21.68 because abnormal shadows were found on routine chest film. Family and past histories not contributory. Pertinent physical findings within normal limits.

LABORATORY DATA: Tuberculin skin test negative, chest X-ray showed a pulmonary infiltration in subapical segment of left lower lobe with no definite evidence of cavitation (See Figure 1).

TREATMENT AND COURSE: As diagnosis of "pneumonia of undetermined origin" was accepted she received treatment with antibiotics, however, she did not make any progress. On December 13, 1968 a segmental resection of left lower lobe was performed (See Figure 2). Tissue cultures showed yeast like organism consistent with cryptococcosis (See Figure 3). After surgery she received 1 gram amphotericin B intravenously. Follow up during next 3 years showed no recurrence of disease.

Figure 2

Chest X-ray 1.8.69 following resection shows lung fields clear.

ILLUSTRATIVE CASE 2

A 72-year-old male was admitted to hospital but died 48 hours after admission. Postmortem examination revealed disseminated cryptococcosis involving central nervous system, liver, spleen and adrenal glands (See Figure 4).

TREATMENT

Medical — amphotericin B is the only drug effective in the treatment of cryptococcosis. Amphotericin B should be given by intravenous infusion of 50 milligrams daily, or on alternating days, but no less than 1 gram and no more than 3 grams should be given because of renal toxicity. Prior to advent of use of amphotericin B cryptococcal meningitis was fatal. In a series of 30 cases of cryptococcal meningitis treated with amphotericin B, Spickard[6] et al reported 30 per cent relapsed within first year after discontinuation of therapy. With retreatment with amphotericin B, only 17 per cent of patients failed to respond to therapy.

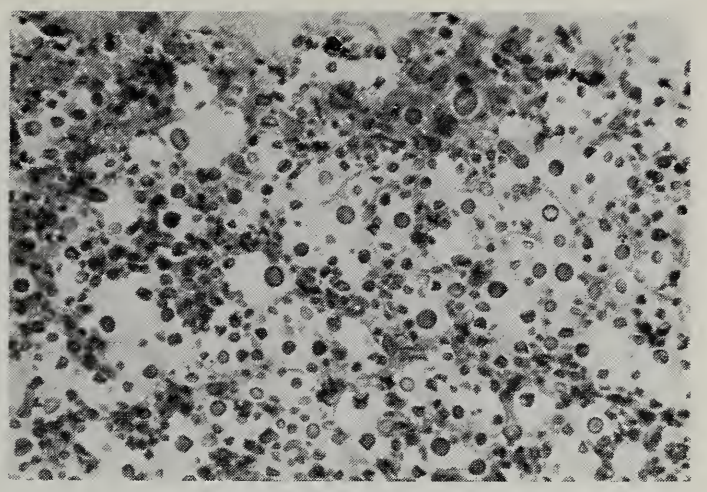

Figure 3

Photomicrograph shows fungus growing on pleural surface, PAS stain. Magnification 450.

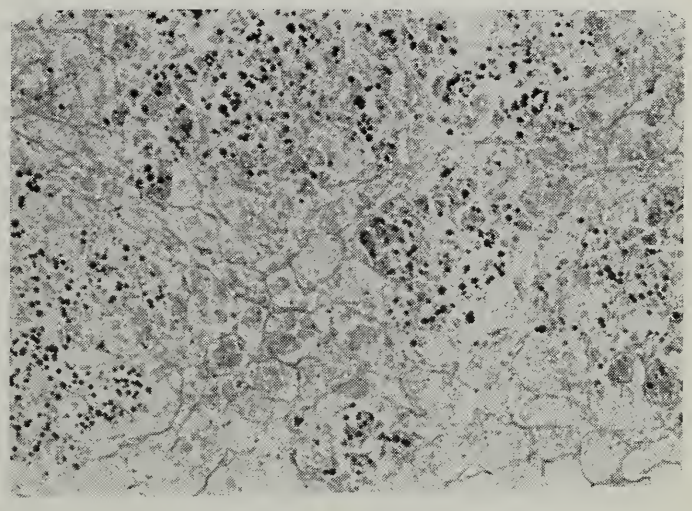

Figure 4

Photomicrograph shows adrenal gland colonies of cryptococci (black argyrophilic) Grocott stain. Magnification 120.

Surgical — surgical treatment such as segmental resection or lobectomy, should be considered in treatment of pulmonary cryptococcosis. Also in cases where fungus infection is suspected, surgery is indicated. After surgery, treatment with amphotericin B should also be considered. Campbell[7], in his review of 101 cases of primary cryptococcosis, found 7 of 9 patients who had previously had surgical resection of diseased pulmonary tissue subsequently developed cryptococcal meningitis.

Patients treated either by surgery or ampho-

tericin B, or both, should have a follow up for an indefinite period of time.

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ANNUAL MEETING ON ANTIBIOTICS AND INFECTION

The Third Annual Meeting on Antibiotics and Infection will be held at the University of Iowa on Thursday, Friday, and Saturday, October 26th, 27th, and 28. Inquiries should be made to Dr. Ian M. Smith, Department of Internal Medicine, University Hospitals, Iowa City, Iowa 52240

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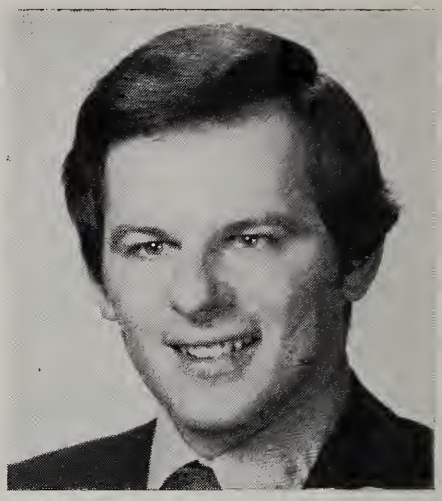

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CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

JOHN F. BARLOW, M.D., FCAP**
Pathologist - Editor

FRANK M. PETEREIT, M.D.*
Radiologist - Discusser

82 YEAR OLD CAUCASIAN MARRIED MALE WITH AN ABDOMINAL MASS

CASE NO. A70-102

This 82-year old Caucasian married male entered Sioux Valley Hospital with the chief complaint of anorexia and bloating of 10 months duration. The patient had these symptoms particularly after he had eaten ham, sauerkraut, and fatty foods. There had been an 8 pound weight loss over the preceding few months. One night prior to admission the patient had a 2 hour episode of severe lower abdominal pain which did not radiate to the back. This followed a meal of ice cream and nuts. The pain was described as steady and non-cramping and was not associated with nausea or vomiting. It was not associated with position and not relieved by bowel movements, but some of the distress was relieved by passing gas. There was no previous history of ulcer or jaundice. He was told he had "gallstones" 14-15 years ago. The patient had not complained of fever although he felt a little chilly at times. There had been a mild sweating episode some weeks ago. This lasted for 1 hour.

Review of systems revealed he had decreasing hearing, especially on the left side where he wore a hearing aid. He had no cough, dyspnea, hypertension or chest pain. He complained of nocturia one to two times nightly. There was minimal frequency, but no straining, dysuria, or hematuria. The patient was taking digifortis. Past history and review of systems were otherwise unremarkable. He had an injury many years ago which had caused atrophy of the right hand muscles. This was not described further.

Physical examination revealed an alert, elderly, well-nourished white male, 5′ 9½″ tall, weighing 162 lbs. Blood pressure was 176/86 in the right arm; 170/80 in the left arm. The pulse was 64/min. and regular; respirations 18/min. and regular; and the temperature was 96.5°F. The patient had minimal opacities in the lenses and narrowing of the arterioles in the fundi. There was some scarring of the right ear drum. The examination of the neck showed no enlarged lymph nodes and the thyroid was not felt. There was considerable prominence of the right posterior cervical muscles, apparently related to an old injury. The lungs were clear to auscultation and percussion. The heart was at the midclavicular line to percussion. There was a grade I aortic systolic murmur heard best when the patient was sitting. There was very mild carotid transmission. The heart tones were distant over the rest of the chest. A2 was greater than P2. On examining the abdomen, palpation revealed a mass in the right quadrant 3-4 finger breadths down and firm. It moved with respiration and was interpreted as liver. There was a suspicion of nodularity in the right epigastrium. The spleen and kidneys were not felt. There were no herniae. No distention, spasm or tenderness was found. Neurologic examination was unremarkable. Prostrate showed minimal enlargement without nodules.

CLINICAL PATHOLOGY DATA: Hemoglobin 15.4 gm%, red count 5.26 million/mm^3, hematocrit 51 Vol.%, mean corpuscular hemoglobin 30 micromicrograms, mean corpuscular volume 96 cubic micra, mean corpuscular hemoglobin concentration 32%, total leukocyte count 8,800/mm^3 with 64% neutrophils, 1% neutrophilic bands, 1% eosinophils, 9% mature lymphocytes. The platelets were adequate on smear. Erythrocyte sedimentation rate was 39 mm. per hour. Admission urinalysis was straw-colored, clear, specific gravity 1.015, pH 5.0, negative for protein, glucose, ketone bodies, hemoglobin, and bile. There was an occasional white cell in the sediment. Fasting blood glucose was 125 mg%, blood urea nitrogen 26 mg%, alkaline phosphatase 4.7 units (normal 0.8-2.3 units), lactic dehydrogenase was 70 units and the fractionation was within normal limits. Bilirubin was 1.0 mg% total with 0.5 mg% direct and 0.5 mg% total. Bromsulphalein retention was 22%, prothrombin time was 11.4 seconds with 12.5 second control. Partial thromboplastin time was 28.0 seconds with a 28.5 second control. Serology was non-reactive and a radioistotope hepatic scan was within normal limits. Amylase 56 units, lipase 0 units, calcium 7.7 mg%, (normal 8.3-10.3 mg%), phosphorus 4.2 mg%, total protein 6.3 gm% with 3.3 gm% albumin and 0.3 gm% alpha 1 globulin, 0.7 gm% alpha 2 globulin, 0.7 gm% beta globulin and 1.2 gm% gamma globulin. Leucine aminopeptidase 160 units (normal 70-200 units).

An electrocardiogram was read as "delayed intraventricular conduction of nonspecific type with associated left axis deviation suggesting partial block irregularity in rhythm most likely due to sinus arrythmia, increased vagotonia. Slight variation was noted in the PR interval which may reflect intermittent sinoatrial arrest or delay in intraventricular conduction. ST-T wave changes consistent with ischemia or digitalis effect." A chest film was within normal limits for age. A cholecystogram revealed no visualization of the gallbladder. There was a large area of amorphous calcification which appeared to be located within the midportion of a hugely distended C-loop of duodenum. There was a 2.5 cm. diverticulum in the 4th portion of the duodenum. The proximal small bowel appeared otherwise normal. A barium enema showed minimal diverticulosis. The patient declined exploratory laparatomy.

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Supported in part by Clinical Cancer Training Grant T12 CA 08032 from the National Cancer Institute of the National Institute of Health, U. S. Public Health Service.

The patient was admitted 10 months later with a sudden onset of paralysis of the right side and difficulty speaking. On admission his weight was 150 pounds, blood pressure 158 systolic and 86 diastolic, temperature 98.8°F, pulse 86 per minute and regular, respirations 20 per minute and regular. There were considerable numbers of inspiratory and expiratory gurgling rales and Cheyne-Stokes respiration. No heart murmurs were heard at this time. Again a large right upper quadrant mass which was firm and nodular was felt. It appeared to move with respiration and was tender. The patient had a right hemiparesis with an extensor plantar response on the right. He was slightly obtunded and confused.

CLINICAL PATHOLOGY DATA: Hemoglobin 15.5 gm%, red count 5.4 million/mm^3, hematocrit 45 Vol. %, mean corpuscular hemoglobin 28 micromicrograms, mean corpuscular volume 83 cubic micra, mean corpuscular hemoglobin concentration 35%. Total leukocyte count 11,800 with 76% neutrophils, 5% neutrophilic bands, 19% lymphocytes. The red cells were normochromic and normocytic and the platelets appeared adequate on smear. Admission urinalysis - yellow, clear, specific gravity 1.017, pH 6.5, protein 1+, negative for glucose, moderate amount of acetone, negative for hemoglobin and bile. The sediment showed 0-2 white cells per high power field and 1-2 red cells per high power field. There were 1-3 coarsely granular casts per low power field. Prothrombin time 12.5 seconds with the control 11.0 seconds. Blood urea nitrogen 28 mg%. Admission pH 7.45, PCO_2 36mm of mercury, CO_2 content 24 meq/L, sodium 134 meq/L, potassium 4.5 meq/L, and chloride 99 meq/L. Creatinine 1.3 mg%. Spinal fluid opening pressure 120mm of water, clear, colorless, 33 red cells/mm^3, 2 white cells/mm^3, one of which was a polymorphonuclear leukocyte and one a mononuclear cell. Cerebrospinal fluid protein 43 mg per 100 ml. and gamma globulin 2 mg per 100 ml. Total protein 4.9 gm%, calcium 7.0 mg%, phosphorus 3.4 mg%, cholesterol 120 mg%, glucose 256 mg%, uric acid 6.2 mg%, bilirubin 0.9 mg%, alkaline phosphatase 90 units/100 ml (normal 30-80 units), SGOT 53 units%. Chest films showed cardiomegaly and some vascular engorgement most pronounced in the left upper lobe. Follow-up chest films revealed patchy consolidation of both lung fields consistent with pneumonia. Electrocardiogram was definitely abnormal due to complete left bundle branch block and nonspecific ST and T wave changes suggesting left ventricular strain. The patient's course was characterized by azotemia, increasing obtundation and terminal spiking fever. He died on the 14th hospital day of the second hospital admission.

DR. PETEREIT: When Dr. Barlow first gave me this conference, I was somewhat surprised—being a radiologist. However, I considered this a challenge and will go on.

*DR. STEPHEN KAHLER: Before you go any further, I think there should be a correction in the protocol. It states that there were 10 months that the mass was present. Actually, I think you will find if you consult the charts that it was two years from the first to the second admission.

DR. PETEREIT: In summary, we have an 82 year old Caucasian male with gallbladder disease; arteriosclerotic disease manifested by both cardiovascular and cerebrovascular disease with a stroke; and a large abdominal mass. He apparently died of cerebral infarction complicated by pneumonitis. There is a wealth of data in the protocol. I needed some help on the lab values, the most significant item of which is a low calcium of 7.7 mgs%. Dr. Sanderson tells me that low calcium can be due to hypoproteinemia but is not sure that this patient has hypoproteinemia of significant degree. As I will explain later, I think this low calcium may have been due to some pancreatitis. The blood sugar was elevated slightly, but I do not feel this is important. As you might suspect (being a radiologist) I am going to show the films. The most significant findings are in the upper gastrointestinal series. There is a 2.5 cm. diverticulum in the fourth portion of the duodenum. This region (points) in the duodenum is spoken of as the C-loop. In this case there is marked widening of the C-loop. (Figure I) There is calcification within the center of this mass which does not spread to the periphery. There is anterior displacement of the antrum of the stomach and the second portion of the duodenum. (Figure II) There may be some indentation of the duodenum, too.

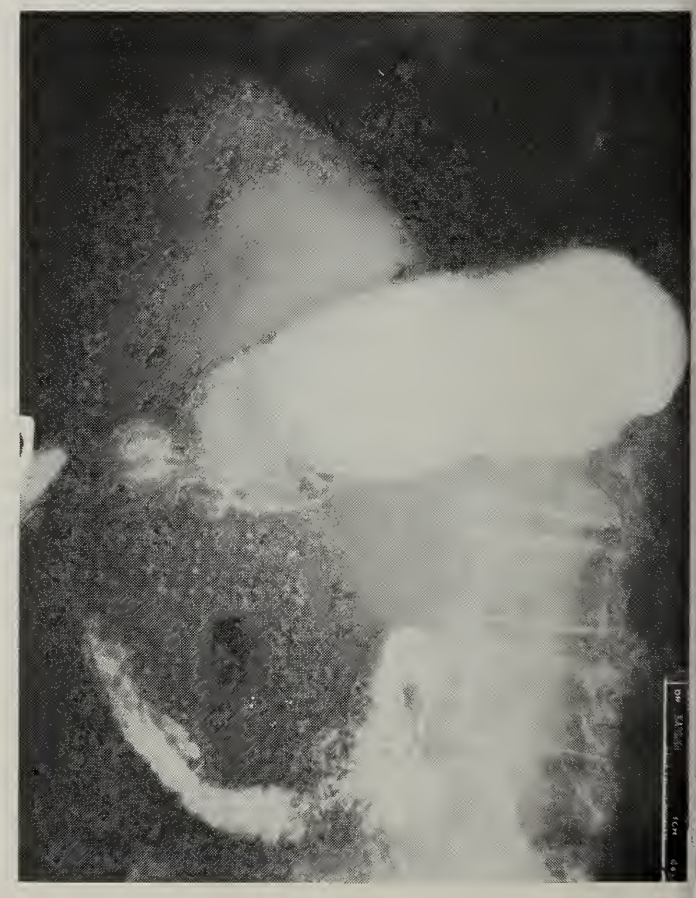

FIGURE I

Note widened C-loop. Arrow points to calcification in this region.

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FIGURE II

Anterior displacement of stomach by mass.

A very significant point is that in spite of the fact that there is a large mass widening the C-loop, the mucosal folds are intact. There appears to be no destruction of the mucosa. It could be interpreted that the duodenum is stretched over a mass and there is no invasion of the duodenum. The significant finding in the barium enema is that the hepatic flexure is pushed down. Therefore, we have a huge mass which is able to push the stomach and the second portion of the duodenum forward, markedly enlarge the C-loop, and displace the hepatic flexure of the colon downward. I feel this mass is definitely pancreatic.

I thought I might review now some of the major findings that you can see in this "silent" area of the pancreas.

SIGNS OF PANCREATIC MASSES

1. Enlargement of C-loop.
2. Anterior displacement of antrum and second portion of duodenum
3. Stretching of mucosal folds
4. Destruction of mucosal folds
5. Frostberg inverted three sign

The first sign, widening of the C-loop, is not significant unless the C-loop is quite large. This sign is hard to evaluate and is frequently overread. It is not a very sensitive indicator of what is going on in the pancreatic region. One could say that the ability of a barium study to pick up a pancreatic mass is related to the size of the mass and the proximity of the mass to the gut. In other words, occasionally a small mass may be picked up if it is near the gut wall, but a large pancreatic mass may escape detection if it is far removed from the gut wall.

The second sign, anterior displacement of the antrum and the second portion of the duodenum, is also present. This could be a hard sign to evaluate in obese people. Occasionally, we see what we think is anterior displacement of the areas above, but it is just related to the obseity of the patient. The sign is really significant when there is an impression upon the second portion of the duodenum as there is in this case.

The third sign is stretching or displacement of the folds of the duodenum. I pointed out that there is no destruction of the folds in this case, and this is quite significant.

The last sign is referred to as the Frostberg inverted three. This is due to the impression of the mass as well as dilatation of the common duct which will cause an impression in the second portion of the duodenum.

All of the above are signs of a pancreatic mass. Now what kind of masses may occur in the pancreas? The first group are the cysts and these may be inflammatory, such as pseudocysts after pancreatitis, congenital cysts or parasitic cysts such as in Echinococcus. The pseudocysts from pancreatitis are by far the most frequent. Congenital cysts as seen with VonHippel-Lindau syndrome are occasionally seen.

The second condition which may cause some of the above signs are inflammatory conditions such as pancreatitis. You usually do not see enlargement of the C-loop with pancreatitis, but you often see anterior displacement of the antrum and second portion of the duodenum in acute pancreatitis. In chronic pancreatitis you usually do not get any problems except calcification within the gland. Of course, I am excluding the pancreatic pseudocysts which are a complication in pancreatitis. Calcification in the glands shows up on x-rays in between 30-60% of people with chronic pancreatitis.

Another group of conditions are neoplasms. Primary carcinoma of the pancreas is the most frequent neoplasm. Metastatic tumors, of

course, can occur in the region of the pancreas. Benign neoplasms such as adenomas or cystadenomas can also occur. Pancreatic carcinoma is usually an adenocarcinoma and is a very deadly lesion. It is not encapsulated and is often not detected until very late in the course of the disease. By the time one has radiologic signs of the pancreatic mass, the carcinoma is usually inoperable with wide-spread metastases. Because the pancreas is such a silent area, there is much investigation into ways of detecting early pancreatic lesions. Some of these methods have been radionuclide pancreatic scans, angiography of the pancreas and selective catherization with angiography of the pancreas. However, the whole problem is still in a state of great flux.

I did not mention lymphoma of the pancreas although that can occur. Metastases from kidney, lung, and breasts are rather unlikely possibilities in this case.

Now let us review some of the films. First the mass is very large and it has calcification in it. The patient does have some weight loss, but there is not marked cachexia. He has had the mass for a long time, yet the patient is not jaundiced. I do not think there is a chance that this represents a carcinoma because I would expect the patient to be both jaundiced and cachectic with a mass this large if it were malignant. Calcification is also unusual in carcinoma.

*DR. EVERETT W. SANDERSON: Do you think that the mass they talked about in the protocol as liver is what is seen on the x-rays?

DR. PETEREIT: Yes, I feel that the mass is not liver. I think that it is easy to confuse such a mass as this with liver on physical examination, but I think the impression is mistaken. I do not think the liver is enlarged on the x-ray. Therefore, I think that this is a pancreatic mass. It is very easy, particularly in an obese patient, to confuse a liver mass with a pancreatic mass. A liver scan might be helpful in telling whether the liver is enlarged.

DR. BARLOW: I think that the hepatic radionuclide scan is a lot better in telling liver enlargement than the x-ray. Also, in a case like this, the fact that the mass does not pick up the isotope demonstrates that if this mass were attached to the liver, it certainly is not normal liver and this mass could not be simple congestion or downward displacement of the liver. Therefore, a negative finding can sometimes be helpful.

†DR. PAUL SANDERS: Don't you think the fact that the mass moves with respirations makes it a little unlikely to be pancreatic?

DR. PETEREIT: It is true that the pancreas is retroperitoneal, but the retroperitoneal membrane is just a thin membrane and I think that a benign mass with no infiltration into the surrounding tissues of the region could move with respiration.

I will now show some other films of patients with problems in the pancreatic region.

In one film there is a filling defect in the second portion of the duodenum which turned out to be a carcinoma of the ampulla of Vater. (No picture available). This type of lesion, of course, would not tend to give enlargement of the C-loop or other signs which I mentioned. This shows the Frostberg inverted three sign. You get an impression on either side of the ampulla of Vater because that region is less depressable than the other areas. This sign may occur with a carcinoma of the head of the pancreas and ampulla of Vater. There is no enlargement of the loop or other signs I mentioned above.

This film is of a 70-year old female who died within 48 hours of acute hemorrhagic pancreatitis. Anterior displacement of the stomach is seen very definitely. (Figure III)

The next case is a 70-year old female with a proven carcinoma of the pancreas. On this spot you can see that there is irregularity and compression of the duodenal wall which suggests invasion. (Figure IV) It also would appear that there is some invasion on the other side of the bowel wall constricting this whole region. There is no enlargement of the C-loop or anterior displacement of the stomach. You have to realize that in pancreatic masses only one of the signs that I mentioned above may be present, or there may be no signs at all.

In the case at hand, x-rays show calcification, but it is not the type of calcification you get in chronic pancreatitis or in a pseudocyst. I have never seen a primary carcinoma of the

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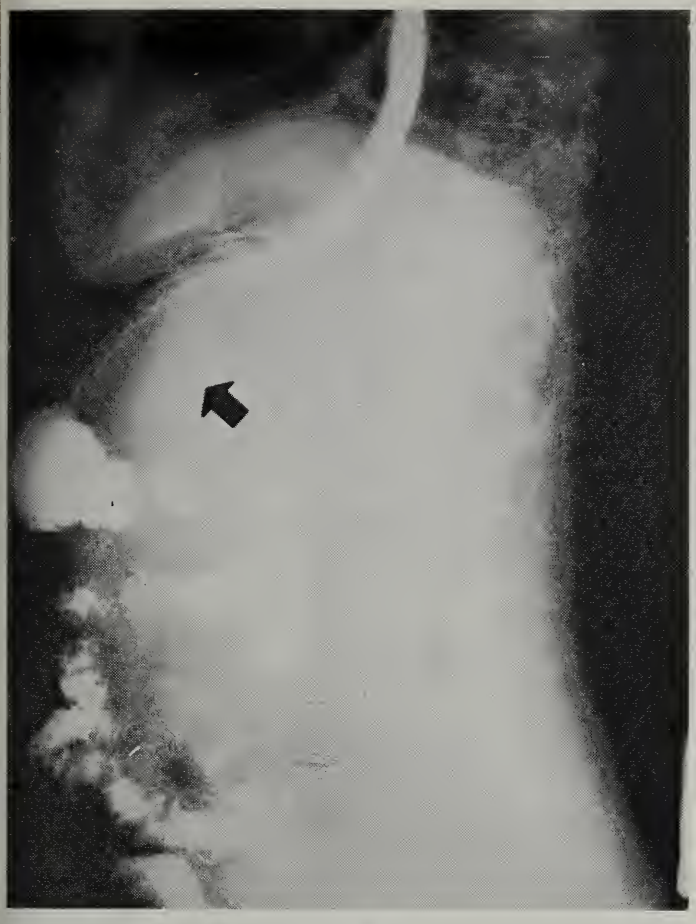

FIGURE III

Lateral view showing marked anterior displacement and compression of the stomach.

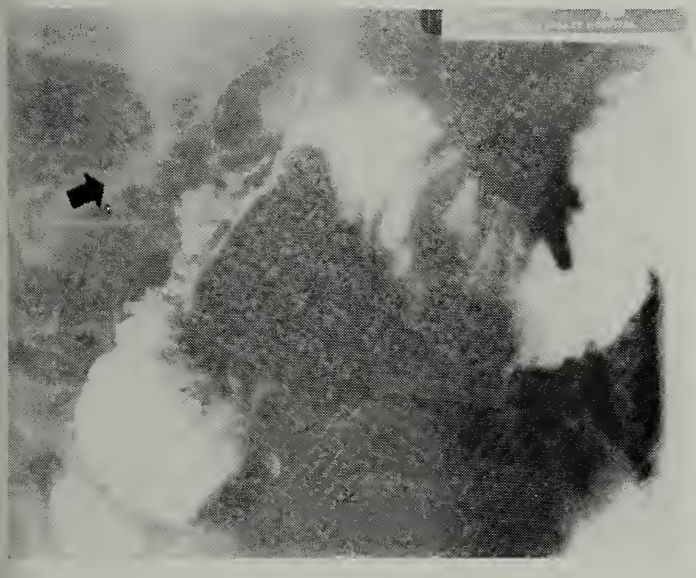

FIGURE IV

Invasion of duodenum by carcinoma of pancreas.

pancreas calcify. Metastatic adenocarcinoma of the colon can give some peculiar calcifications.

I should suggest the possibility that this could be a mass hanging off the edge of the liver and causing a widening of the C-loop. I presented such a case as a hamartoma of the liver in a one-month old female in the Journal recently. However, I think that this is unlikely.

Because cystadenomas can calcify, can reach huge size, and are benign, I think this is the most likely possibility in the case today.

DR. PETEREIT'S DIAGNOSIS

CYSTADENOMA OF THE PANCREAS

DR. SANDERSON: How do you explain the low calcium?

DR. PETEREIT: I feel the patient had some chronic pancreatitis about the cystadenoma and this caused the low calcium. The patient did have some tenderness and this might support the contention. Actually, these interesting x-ray findings in this patient are incidental to the major diseases in the patient as I stated above. The only significant findings with all this laboratory data are the normal bilirubin and perhaps the low calcium as far as these x-rays go.

*DR. MICHAEL BROWN: What is the leucine aminopepitidase for?

DR. BARLOW: Well, some people feel that it is always elevated in carcinoma of the pancreas and always normal in cases where there is no carcinoma of the pancreas. However, I think this is very questionable. Dr. Sanderson, what do you think?

DR. SANDERSON: I don't order it.

DR. BARLOW: Dr. Ensberg?

DR. ENSBERG: I don't order it.

**DR. WARREN JONES: I don't believe the calcium is decreased in chronic pancreatitis, but usually just in acute pancreatitis.

DR. BARLOW: Yes, I believe that is true.

†DR. KARL H. WEGNER: I think that the patient's low calcium is explained on the basis of hypoproteinemia, particularly albumin.

DR. SANDERSON: I do not think that the albumin is really that low in this case as the determination was done by electrophoretic pattern which gives lower albumin than the chemical means of determination.

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DR. BARLOW: This may be true. The albumin is lower when determined by electrophoresis than chemical determination because in the latter you are measuring alpha globulins as well as albumin. Also, the albumin is low in electrophoresis because of inherent problems in staining the albumin when you do densitometry on the electrophoretic strip. Therefore, as you point out, it is important to know how the determination was done and what the normal values are before you determine whether the patient has an elevated or depressed albumin value. Dr. Kahler, did you want to mention some points about this patient?

DR. KAHLER: Yes, I attended this patient. During the first admission I was concerned with the abdominal mass. I first thought it was liver but with the normal liver scan, I then began to suspect carcinoma of the pancreas. No further study could be done because the patient refused surgery as indicated. On later admissions, because he was so sick from his cerebral infarction and heart disease, further evaluation of the pancreatic mass was not done.

DR. BARLOW: As it has been pointed out, the patient died of multiple other problems, although the main cause of death was acute bronchopneumonia. The patient had a middle cerebral artery occlusion with cerebral infarction, as well as a recent myocardial infarction. Because the patient had an old splenic infarct, it was thought that the cerebral infarct also might be embolic.

As Dr. Petereit suggested, in the pancreas there was a huge mass as is illustrated by this slide. (Figure V) The cut section shows it to be a typical gross picture of a cystadenoma of the pancreas. (Figure VI) These photomicrographs show the flat cuboidal epithelium lining this multilocular cystadenoma. (Figure VII)

DR. KAHLER: What did the gallbladder show?

DR. BARLOW: The gallbladder was shrunken and fibrotic with multiple stones. There was a cholecystoduodenal fistula.

DR. SANDERSON: What did you see in the kidneys?

DR. BARLOW: The kidneys showed the usual benign nephrosclerosis that you would expect to see in a patient this age.

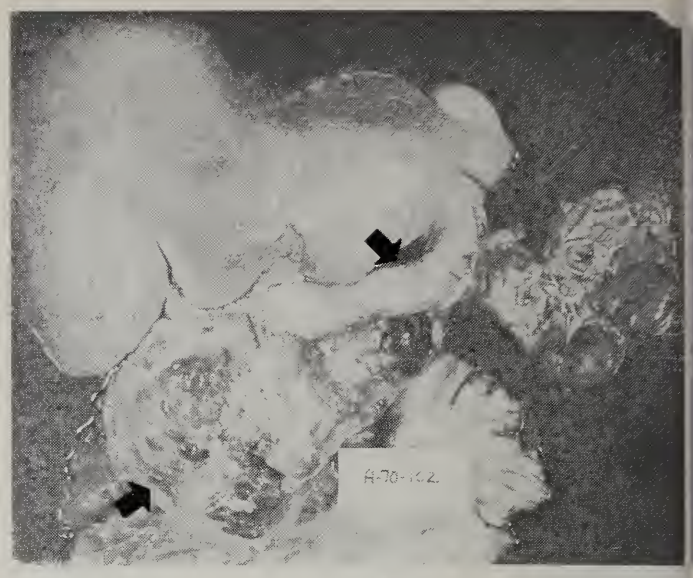

FIGURE V

Beneath liver and elongated stomach (upper arrow) is a mass in region of pancreas (lower arrow).

FIGURE VI

Cross-section of dissected cystic lesion of head of pancreas. A typical gross picture of cystadenoma.

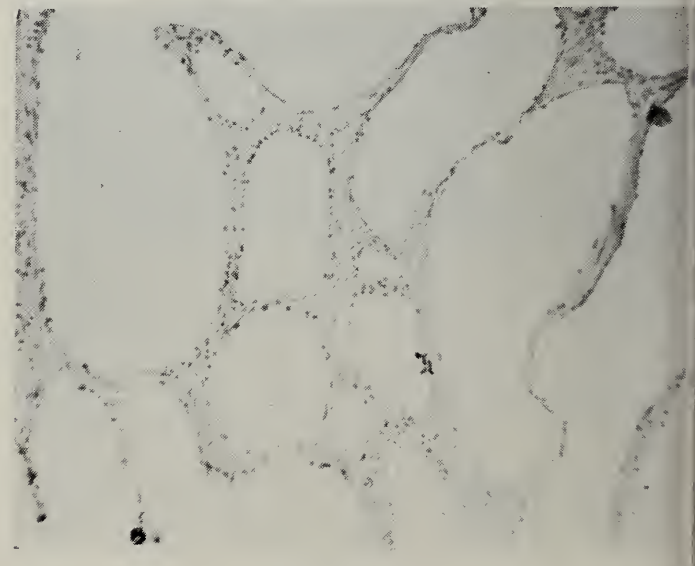

FIGURE VII

Microcystic microscopic structure of cystadenoma with flattened cuoidal epithelium which shows no atypia.

I should mention that the common bile duct was markedly dilated. This was due to compression by the cystic mass. This must have been a very slow compression (as you might expect from the benign nature of the tumor) since although the bile duct was dilated, the flow of bile was not markedly impaired enough so that jaundice occurred.

FINAL PATHOLOGIC DIAGNOSES

1. BRONCHOPNEUMONIA, ACUTE, CONFLUENT, RIGHT UPPER LOBE AND LEFT LOWER LOBE
2. CEREBRAL ARTERIOSCLEROSIS WITH:
   A. ACUTE MURAL THROMBUS, RIGHT MIDDLE CEREBRAL ARTERY
   B. ACUTE CEREBRAL INFARCTION INVOLVING LENTICULAR NUCLEUS, INTERNAL CAPSULE, PUTANEM, LEFT
3. CORONARY HEART DISEASE WITH:
   A. CORONARY THROMBOSIS, ACUTE, ANTERIOR DESCENDING
   B. MYOCARDIAL INFARCTION, RECENT, LEFT, SUBENDOCARDIAL
   C. CARDIOMEGALY
   D. SPLENIC INFARCT, OLD ? EMBOLIC
4. CYSTADENOMA OF PANCREAS WITH:
   A. PARTIAL DUODENAL OBSTRUCTION, EXTRINSIC
   B. PARTIAL COMMON DUCT OBSTRUCTION WITH DILITATION 2.0 mm. CIRCUMFERENCE.
   C. PANCREATIC DUCT OBSTRUCTION WITH ATROPHY AND FATTY REPLACEMENT OF EXOCRINE PANCREAS
5. CHRONIC CHOLECYSTITIS WITH:
   A. CHOLELITHIASIS
   B. CHOLECYSTODUODENAL FISTULA
6. ADRENAL CORTICAL ADENOMA WITH MYELOLIPOMATOUS COMPONENT, RIGHT
7. NEPHROSCLEROSIS, BENIGN
8. BONE MARROW — GRANULOCYTIC HYPERPLASIA, MODERATE

DR. BARLOW: I have reviewed several articles on pancreatic cystadenomas and I would now like to briefly go over them. Becker et al, in the **Annals of Surgery**, June, 1965, reviewed the following benign cysts.

	No.	%
1. Pseudocyst	86	73.4
2. Retention cyst	13	11.1
3. Congenital Cyst	3	2.7
4. Neoplastic cyst	15	12.8

Of the fifteen neoplastic cysts, 11 were cystadenomas, 2 were cystadenocarcinomas, one was a cystic leiomyosarcoma, and one was a cystic rhabdomyosarcoma. Therefore, the benign neoplastic cystadenomas are by far the most frequent. There have been around 200 cases reported, most of them have been in the fifth and sixth decade and the male-female ratio shows that the females outnumber the males 9 to 1. The case described today showing a multiloculated cyst with a cuboidal lining is a typical cyst that may occur although a mucinous lining may be seen. The tumors may occur anywhere in the pancreas from the tail to the head. The pancreatic cystadenomas can be as large as 20 cms, but most of them range between 6 and 15 cms. in greatest diameter. Some articles have stressed the association of symptoms such as sterility, obesity and thyroid dysfunction as well as diabetes mellitus with pancreatic cystadenomas.

Cystadenocarcinomas of the pancreas are even rarer. There are but 65 reported cases which makes the incidence one-half as common as cystadenoma. 50% were in patients less than 50 years of age and 76% of these patients were females. There was some question whether the malignant variety occurred secondary to the benign variety.

DR. KAHLER: What did the liver show?

DR. BARLOW: The liver was completely normal grossly and microscopically.

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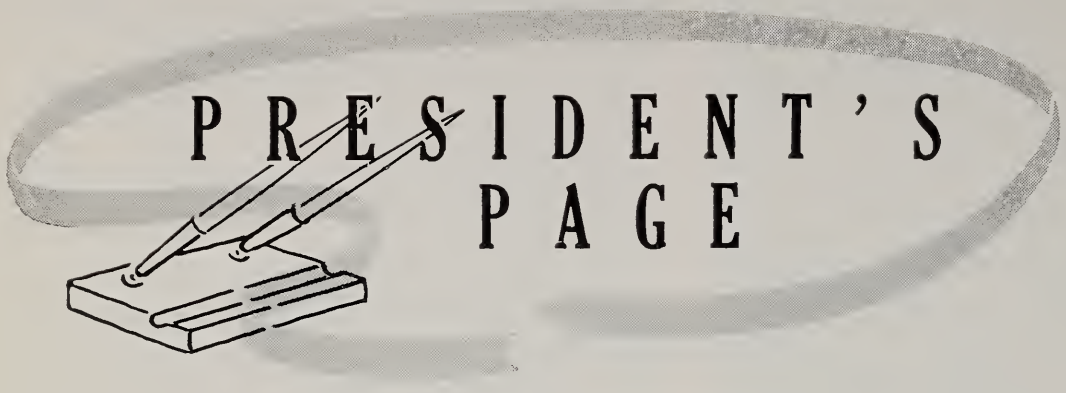

The National Health Service Corps Program has now been in effect for two years, allowing federal support of Public Health physicians in areas of the country where adequate personnel do not practice. Several assignments have been made to South Dakota under this program and a bill to extend the National Health Service Corps for two more years has been approved recently by the Senate subcommittee on health. Undoubtedly South Dakota will be involved in future assignments of such physicians and dentists, and it is felt that those of us practicing in this state should be familiar with the program and with the changes now being considered by the subcommittee.

A provision that would have eliminated the present requirement that the need for NHSC personnel must be certified by local health professions organizations and local governing bodies has been modified substantially. Under the current revised proposal the HEW secretary would be permitted to waive the certification requirement if he determined that there were "over-riding considerations" necessitating assignment of physicians or other health personnel to an area.

The subcommittee's original proposal would have limited medical societies, other health professions organizations, and local governments to a mere consultative role. In testifying before the subcommittee, the AMA supported the proposal to extend the NHSC program but raised a strong objection to the deleting of the requirement for certification. AMA trustee, Ray T. Holden, testified for our organization.

The feeling of the AMA is that a strong and necessary base for community acceptance of the program and its participants has been provided by the role of certification and that removing that base could erect barriers and prevent the level of contact and rapport with peers which are significant factors in stimulating the professional men to establish roots in a community.

The AMA in the past has cooperated closely with the NHSC to make the program a reality, has provided the state and local societies with information on the program, and has encouraged their assistance in identifying areas that are particularly short of health manpower. The AMA has also contracted with the NHSC to recruit private physicians to serve short tours of duty in these areas through "project USA".

The fate of the current bill being considered in the Senate will undoubtedly be well publicized in American Medical News, as well as in the lay press, and it is hoped that final action will again include certification by local health professions organizations and local governing bodies.

W. R. Taylor, M.D.

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This is your MEDICAL ASSOCIATION

W. R. Taylor, M.D., President of the South Dakota State Medical Association, made his official visitation to the Huron District Medical Society on August 23. Dr. Taylor discussed the medical school and the work of the Medical Education Study Committee.

* * * *

A. P. Reding, M.D., Marion, has been selected to serve on the Credentials Committee for the Congress of Delegates meeting of the AAFP in New York. Dr. Reding recently attended the meeting of the National Mental Health Committee in Denver, and was the official representative of the South Dakota State Medical Association at the meeting of the Council on Rural Health held in Chicago.

* * * *

Will E. Donohoe, M. D., Sioux Falls, received a letter of commendation from President Nixon for his many years of distinguished service to the Sioux Falls community.

* * * *

The South Dakota regional meeting of the American College of Physicians in conjunction with the South Dakota Society of Internal Medicine held a two day session for internists and physicians in related medical specialities at the St. John's McNamara School of Nursing in Rapid City. **Robert F. Thompson, M.D.,** Yankton, ACP Governor For South Dakota, was director of the meeting.

Vincent Sullivan, M.D., has joined the Sisseton Clinic. He had served with the Public Health Service in Sisseton for the past two years. Dr. Sullivan graduated from Creighton University and the University of Iowa and interned at the University of Minnesota hospitals.

* * * *

A. H. Robins Company has announced that Rick Martin has joined their firm as a medical service representative.

Martin is a graduate of South Dakota State University, and will be working in the Sioux Falls area.

* * * *

Curtis A. Groote, M.D., Sioux Falls, is now associated with **Richard Gunnarson, M.D.** in the practice of Otolaryngology.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

Karl H. Wegner, M.D., Professor of Pathology at the University of South Dakota School of Medicine, spent two days in May in Tucson as Visiting Professor of Pathology at the University of Arizona, College of Medicine. Dr. Wegner is also pathologist at the Laboratory of Clinical Medicine and Sioux Valley Hospital in Sioux Falls.

* * * *

The University of South Dakota School of Medicine has received a grant in the amount of $10,130 for July 1, 1972, through June 30, 1973, for a project entitled "Undergraduate Psychiatry." This program is to instruct sophomore medical students in clinical psychiatry by lectures, demonstrations and discussions. Personnel engaged in this training program include Dr. Phillip Pugh, Administrator of the project, and Dr. A. J. Kandik, both from Sioux City, and **Bill Church, M.D.** and **George Smith, M.D.,** both from Sioux Falls.

* * * *

The South Dakota State Board of Medical and Osteopathic Examiners elected the following officers for the coming year: **W. A. Bormes, M.D.,** Aberdeen - President; **L. L. Massa, D.O.,** Sturgis - Vice President; and **G. R. Bartron, M.D.,** Watertown - Secretary-Treasurer. Other members of the Board are **R. C. Jahraus, M.D.,** Pierre, and **R. A. Buchanan, M.D.,** Huron.

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A practical course in the technique of intradermal provocative food testing and food injection therapy will be offered Saturday and Sunday, March 10-11, 1973, at the Admiral Semmes Hotel, P.O., Box 1209, Mobile, Alabama 36601.

The course will also cover inhalants, chemicals, drugs, fungi, yeasts, viruses, hormones, terpenes, air-pollutants, insects, and contact dermatitis.

The registration fee of $125.00 also covers one dinner and two luncheons. To register for the course send name, address, and check (payable to Provocative Allergy Course) to: Joseph B. Miller, M.D.; 3 Office Park, Suite 110; Mobile, Alabama 36609.

Room reservations should be made directly with the hotel.

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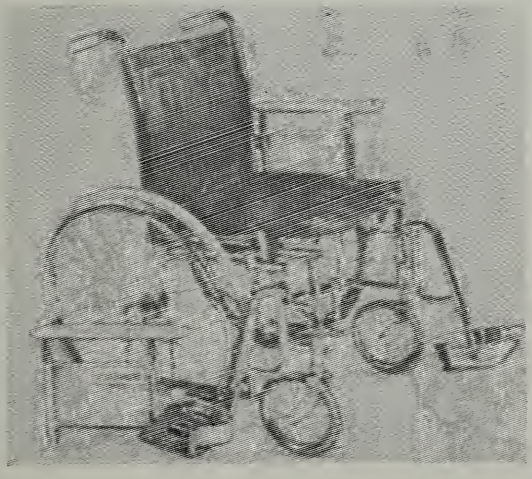

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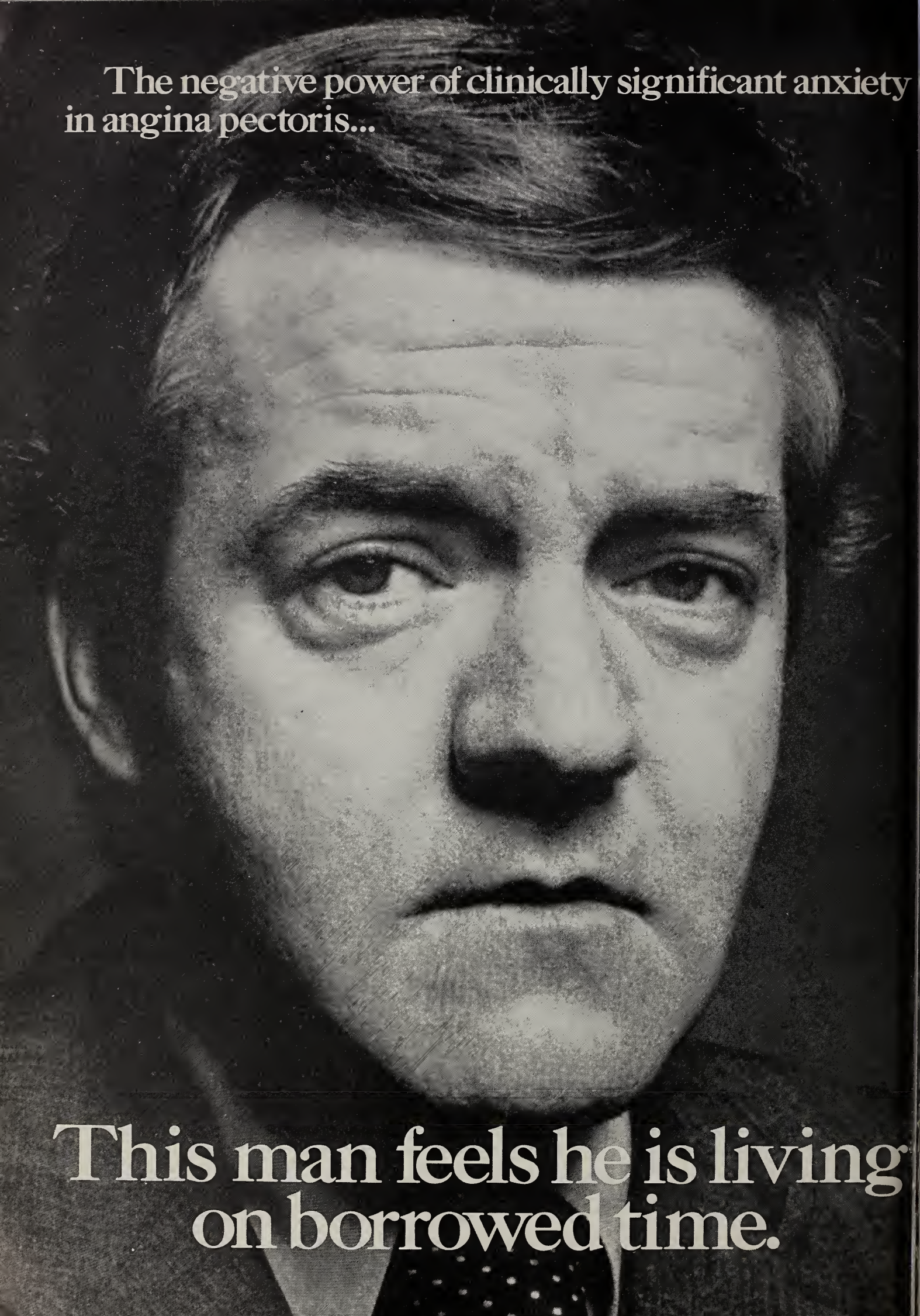
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*Levine, S.: "Angina Pectoris and Emotional Overlay," Scientific Exhibit presented at the Annual Meeting of the Maine Medical Association, Kennebunkport, Me., June 13-15, 1971.

A copy of the Levine study may be obtained from your Roche representative.

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A MORE SENSITIVE HEMAGGLUTINATION TEST FOR A2 STRAINS OF INFLUENZA VIRUS

By

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Arthur E. Hougland, M.S.

Department of Microbiology
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ABSTRACT

The hemagglutination titers of Asian (A2) strains of influenza virus can be increased 4 to 10-fold if vaccinia virus-agglutinable chicken erythrocytes are employed in the standard hemagglutination test.

The Asian (A2) serotypes of influenza virus represent such a significant shift in the nature of viral hemagglutinin and neuraminidase antigens that is considered by some to be a new influenza virus introduced from an animal reservoir.[1] This is reflected at the practical level in the relatively low hemagglutination (HA) titers observed with these strains which in our laboratory usually do not exceed 40-80 hemagglutinating units (HAU) per ml. In previous experiments designed to study the hemagglutinin induced by vaccinia virus[2,5,6] red cells from selected domestic chickens were used since red cells from all such birds are not agglutinated by vaccinia virus. In an effort to increase the sensitivity of A2 influenza virus HA titrations we thought these vaccinia-agglutinable red cells would be more suitable. This note describes experiments which indicate that the HA titers of the A2 strains can be increased from 4-10 fold if vaccinia-agglutinable red cells are used.

The A2 viruses employed in this study were: A2/Japan 305/57, A2/Taiwan/64 and A2/Hong Kong/68 which were grown in 9-day embryonated eggs by standard procedures or in monolayer cultures of MDCK-USD cells by methods described previously.[3] Control viruses included A0/PR8, A1/Ann Arbor, B/GL 1739 and C/Taylor 1233.

Whole blood from 45 chickens of various breeds was collected in Alsevers solution, aliquots of which were centrifuged and the red cells washed in phosphate buffered saline (PBS). They were resuspended in PBS as a 0.5% suspension based on packed cell volume. HA titrations were performed with vaccinia virus to identify those birds with vaccinia-agglutinable cells (Table 1). Only 13% of the chickens produced such cells and only one of the 45 chickens had cells that were agglutinated by vaccinia virus to a high titer. This bird was selected for our experiments.

Various strains of A2 influenza virus as well as A0, A1 and B viruses were used in comparative HA titrations using the vaccinia-agglutinable red cells and red cells from another chick-

This work was supported by USPHS grant AI 05478, The South Dakota Division, American Cancer Society and by a grant from the Fraternal Order of Eagles. The technical assistance of Mr. Richard Duman is gratefully acknowledged.

TABLE 1

HA TITRATIONS OF VACCINIA VIRUS WITH RED CELLS FROM RANDOMLY SELECTED CHICKENS

CHICKEN NUMBER	HAU/ML
6604	2560
2706	160
6720	80
6619	80
6628	80
6675	80
39 chickens	0

en not in the above mentioned group but whose red cells were agglutinated only to a titer of 40 HAU/ml by vaccinia virus. In these titrations both egg (E) and tissue culture-passaged (TC) virus was used.

The results (Table 2) show that the vaccinia-agglutinable red cells produced higher HA titers with the A2 strains than did the ordinary red cells. The increase in titer ranged from 4 to 10-fold and is observed quite consistently. The smallest increase was observed for A2/Japan 305/57, an egg passaged virus that had been selected for high HA activity in another laboratory. These titrations were carried out at room temperature, 37° and 0° but no significant differences were observed in the HA titers except for C/Taylor 1233 which required a 0° temperature for agglutination. Experiments with the control viruses showed that A1/Ann Arbor and C/Taylor 1233 also had higher HA titers although at the lowest limit of significance. A 4-fold or greater increase in titer was considered significant.

These data indicate that 1) selected chicken red cells can improve the sensitivity of A2 influenza virus HA titrations and 2) that the A2 strains appear to react differently in this test than other serotypes of influenza virus affirming the substantial alteration in the hemagglutinin of these viruses.

At this time, the significant differences between the ordinary chicken erythrocytes and the vaccinia-agglutinable erythrocytes are not known. It appears that these red cells are lipid sensitive[4] and are capable of agglutination by the soluble hemagglutinin of vaccinia-infected cells[2,4,5,6] which is an altered cellular lipoprotein. We have also observed that these red cells are agglutinated by fractions from uninfected MDCK cells which contain endoplasmic reticulum and plasma membrane markers (Gaush, unpublished data). This suggests that the lipoprotein envelope of the A2 strains of influenza virions has been altered resulting in a greater degree of agglutination of lipid sensitive erythrocytes than of ordinary chicken erythrocytes. This increased sensitivity may be useful in various experimental and clinical applications.

TABLE 2

HEMAGGLUTINATION TITRATIONS OF INFLUENZA VIRUSES WITH CHICKEN ERYTHROCYTES

		HEMAGGLUTINATING UNITS/ML		
Virus	Source	Ordinary RBCs	Vaccinia-Agglutinable RBCs*	Fold Increase
A2/Japan 305/57	TC	40	320	8
A2/Japan 305/57	E	320	1280	4
A2/Taiwan/64	E	4	40	10
A2/Hong Kong/68	TC	80	640	8
A2/Hong Kong/68	E	80	640	8
			Mean Increase	7-fold
A0/PR8	E	160	320	2
A1/Ann Arbor	E	640	2560	4
B/GL 1739	E	1280	1280	0
C/Taylor 1233**	E	1280	5120	4
			Mean Increase	2.5-fold

*Cells from bird #6604

**Titration carried out at 0°C.

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Interested physicians will please write directly to the Department of Otolaryngology, Eye and Ear Infirmary, 1855 West Taylor Street, Chicago, Illinois 60612.

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REPORT OF THE MEDICAL EDUCATION STUDY COMMITTEE

This committee was appointed by President W. R. Taylor, M.D., at the direction of the House of Delegates of the South Dakota State Medical Association. A resolution was adopted at the 1972 Annual Meeting which directed the committee to review the various approaches that have been presented regarding medical education and arrive at a concise and definite recommendation which would embody the thoughts of the majority of the members of the medical profession in the State of South Dakota and would serve as a useful tool in the coordination of the efforts of the medical school administration and the Board of Regents, as such to be presented as a recommendation to the next legislative sesssion. The committee, along with the Council of the South Dakota State Medical Association, is delegated the responsibility of making a firm decision for the medical profession in South Dakota.

Members of the medical profession serving on this special committee are as follows:

B. C. Gerber, M.D., Aberdeen, Chairman
James Ryan, M.D., Mobridge
C. B. McVay, M.D., Yankton
C. F. Gryte, M.D., Huron
G. R. Bartron, M.D., Watertown
B. J. Begley, M.D., Sioux Falls
G. E. Tracy, M.D., Watertown
Reuben Bareis, M.D., Rapid City
Student representatives: Judd Reaney and Robert Bury

The committee has met five times during the summer, and has obtained a large volume of information which the members have studied and weighed in their deliberations.

At the first meeting in May, six priorities were established.

1. Arrive at a reasonable conclusion as to the continued acceptance of South Dakota graduates from the two year school.
2. Establish the availability of teaching physicians in South Dakota.
3. Study and evaluate the curriculum of both the 3 and 4 year medical school.
4. Obtain and evaluate the specific concept of a "school without walls".
5. Form an opinion or recommendation and disseminate the information to South Dakota in an intensive educational program.
6. Consider the validity of a three year program in terms of purpose, financial aspects, and acceptance.

Three subcommittees were set up and assigned the responsibility of obtaining information on these points which would then be distributed to the entire committee.

A poll of doctors in the larger communities of the state was taken to determine the availability of teaching physicians and the adequacy of community facilities throughout the State. A total of 297 questionnaires were sent out and 167 were returned. The answers provided the committee with information that a majority of doctors in the larger communities would be willing to participate in medical education. The survey also showed that adequate clinical material would be available in the community hospitals. Several replies indicated concern over the financial aspects of a degree granting medical school in South Dakota.

Dean T. N. Harwood of the University of North Dakota School of Medicine met with the committee and discussed studies made in North Dakota regarding the 2 year school and plans being formulated there. Inasmuch as their program must be approved by their legislative body, he was not able to state definitely which way North Dakota will proceed.

Dr. Earl Scott, acting Dean of the University of South Dakota Medical School, met with the committee to discuss graduate programs at the Medical School and developments by the curriculum committee. Two meetings of this committee were scheduled for September in Vermillion.

Representatives of the special study committee met with representatives of the Board of Regents to discuss medical education in terms of the master plan for education. The committee obtained information from the Association of American Medical Colleges on what type of data is required from developing medical schools.

A survey of schools to determine the transferability of 2 year basic science school graduates was carried out by the study committee. Replies were received from 81 schools; of these 65 presently accept transfers from USD School of Medicine. 63 schools anticipate continuing to accept students in the foreseeable future. However, in eight to ten years this could change. 30 schools offer a 3 year curriculum. However, only 3 schools have an obligatory program. It is optional in the remaining schools. The answers received showed that non-resident entering freshmen are kept to a minimum in all out of state schools. This fact reinforces the committee's recommendation that South Dakota must maintain a medical school to provide an entrance into medicine for our state students. Entering non-resident freshman students in out of state schools are required to meet extremely high standards; i.e. grade point averages and MCAT scores. It is the concensus of the committee that students from South Dakota desiring to enter medical school would find it increasingly difficult to be accepted as freshmen in medical schools outside our state in the future.

The committee studied in depth the 3 year accelerated programs and found that most of the medical schools with accelerated programs do not offer the program routinely to all students who enter. Mostly, these programs are open only to the exceptional student.

Information was obtained from many sources regarding the relationship of location of training and location of practice. This material showed that most physicians now practicing in South Dakota originally were from the states of Minnesota, Iowa, Nebraska, North and South Dakota. Very few doctors now in the State came from areas outside the midwest. A survey of doctors who graduated from USD medical school showed environmental factors, such as clean air, water and geography played a large role in the selection of a practice location. It would appear that if we can provide a degree granting school in South Dakota, many midwestern students will choose to remain here to practice.

The committee studied plans of schools now using community hospitals in their training programs. Members of the committee traveled to East Lansing, Michigan, to attend an informative program on the operation of that School of Medicine, which completely utilizes community hospitals. No plans were considered which would demand construction of a large university hospital. It is currently felt that it is desirable to train doctors in the type of surroundings they will practice in, rather than in a huge super-specialized medical center.

Dr. Henry Parrish, Vice President in charge of Health Affairs at USD, has provided financial information to the study committee. He has indicated that the present basic science school has increased its enrollment to 65 freshmen. The proposed budget for a 4 year program in South Dakota would require a state appropriation of

$1,367,878	for	1973-74
1,867,878	for	1974-75
2,367,878	for	1975-76
2,568,000	for	1976-77

The above figures represent a $500,000 increase over the 1972-73 budget, with each subsequent year presenting a similar increase except for fiscal year 1976-77 which is an increase of approximately $200,000. These figures are premised upon having 20 students in the 3rd and 4th year classes. If the class size were eventually increased to 65 students in all 4 years, the total budget would be $4,801,647, with the state appropriation being $3,000,000 of this figure. It is felt that this money would be available for medical education if educational priorities in the state are established and accepted.

The committee met with the Accreditation Committee of the American Association of Medical Colleges during their site visit to Vermillion, in September.

The committee, in its review, studied responses from schools offering a 3 year curriculum and a 4 year curriculum and from these responses felt that the 4 year program offered the greatest benefit for South Dakota. Many

schools indicated a reluctance on the part of students to accept the 3 year program. In fact, many 3 year students requested the opportunity to continue their studies after completing the 3 year program. It was also pointed out that there were not considerable cost savings under the 3 year program. In fact, in some cases it was indicated that the 3 year program was more expensive because of the heavy concentration of courses.

It is for the foregoing reasons that the committee feels that a 4 year program is the most logical approach to helping provide an opportunity for South Dakota residents to pursue a career in medicine.

The committee's recommendation is therefore strongly in favor of continued support for the 2 year school and embarking on a pilot program to provide the last 2 clinical years of medical education using the hospitals and the facilities available in Yankton and Sioux Falls.

It is the committee's opinion that this type of four-year pilot program should be started using a modest number of medical students (approximately 15-20) so as to allow the medical school and the communities initially involved time to build up their programs, recruit staff, and evaluate the successes of the program.

A poll of all South Dakota physicians will be taken in October, and hopefully a strong concensus will be obtained at that time. Following the poll of physicians, the committee will take the necessary steps to implement the wishes of the majority of South Dakota physicians.

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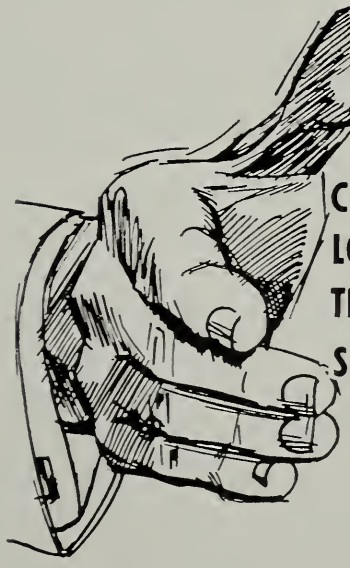

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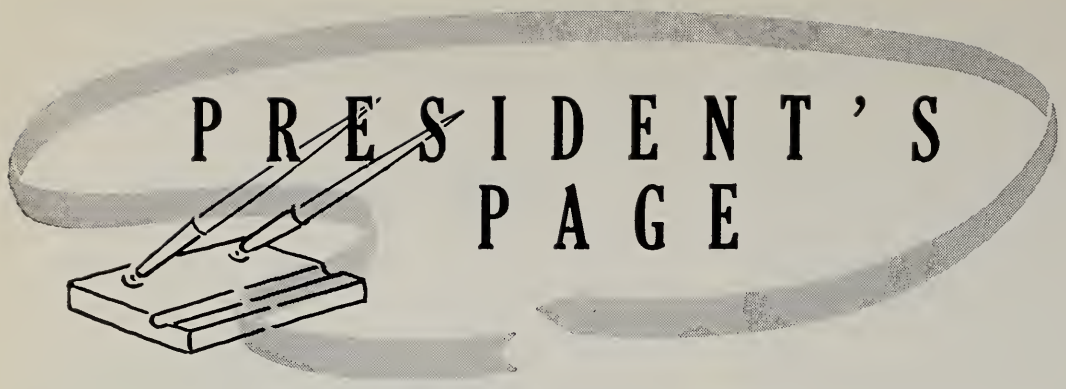

PRESIDENT'S PAGE

A dilemma does exist in medical education in South Dakota and throughout the country. This dilemma has been largely created by the great expansion in the size of Freshmen classes in all medical schools in the past few years. A number of schools now admit 200-300 or more students each year. It has now become apparent that the bottle neck in medical education is not the first two or basic science years but rather it is the third or Junior year where most schools are becoming hard-pressed to find enough satisfactory Junior clerkships. It is this bottle neck coupled with other factors that has caused many schools which had previously been transfer points for our students to either cease to accept Junior transfers, to markedly reduce the numbers accepted, or to make the transfer situation indefinite. Additional factors affecting transfer include the marked decrease in the attrition rate between the first and third years of medical school (largely because of the excellence of the admitted Freshmen and the desire of schools to graduate all those admitted), the increasing numbers of US citizens in foreign medical schools desiring transfer to the third year of U.S. schools, and increasing numbers of people with Ph.D. degrees, etc. being admitted to medical schools with advanced standing.

Most medical schools are now feeling the pressure of their legislatures to admit only residents of their states into their institutions. For example, the entering Freshmen class at the University of Iowa this fall was composed completely of Iowans for the first time in the school's history and this school has indicated that Junior transfers will not be accepted in the future largely because of the expanded basic science program with subsequent shortage of clinical space for the third year students.

Because of the excellence of the applying students most medical schools throughout the country require a 3.0 to 3.5 grade point average and a 600+ M.A.C.T. score for admission. These requirements are appreciably higher than those currently employed by the University of South Dakota School of Medicine.

Because of the above residency and scholastic requirements it is estimated that no more than 10 to 15 South Dakota applicants would be accepted into Freshmen classes of out-of-state schools. The entering class at Vermillion this fall is composed of 54 South Dakota residents out of a total of 65 students.

It is my opinion that we South Dakotans do have an obligation to keep open the access into medical education for our residents and it appears that this access will be largely via the University of South Dakota School of Medicine in the future.

The dilemma is as recorded above, the excitement tempering this dilemma exists in the means we have of continuing medical education in South Dakota.

The ad hoc Medical Education Committee of the State Medical Association has accumulated data (recorded in part elsewhere in this issue) which indicates that granting the M.D. degree at the University of South Dakota is both possible and desirable. It is felt that a degree granting school is the foundation upon which graduate programs in the basic sciences, post graduate programs (family practice and other residencies), continuing education for South Dakota physicians and ancillary medical, nursing, and technical programs would best build.

Your Medical Education Committee therefore makes the following recommendations: 1) Continued funding at more adequate levels of our present two-year medical school to maintain its viability as a quality institution. This includes the support of the present graduate programs in the School of Medicine. 2) Funding and implementation of a pilot program (Approximately 15 to 20 students) of a four year degree granting school in an attempt to demonstrate its feasibility and potential quality. It is further recommended that this clinical program be based in Yankton and Sioux Falls with utilization of other regional resources as necessary to insure a quality program. It is also understood that a complete evaluation of this pilot program shall be conducted after it has been in operation for a four or five year period.

W. R. Taylor, M.D.
President

CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

JOHN F. BARLOW, M.D., FCAP**
Pathologist-Editor

GREGORY NAUGHTON, M.D., FACP*
Internist-Discusser

SIXTY-ONE YEAR OLD CAUCASIAN FEMALE WITH EPIGASTRIC PAIN, WEIGHT LOSS AND ACHING OF LEGS FOR TWO MONTHS

CASE NO. 71-1510

This 61-year old caucasian female entered Sioux Valley Hospital because of epigastric distress, 20 pound weight loss over a three to four week period and aching of the legs and thighs of two months duration.

Approximately 22 months previously the patient had been hospitalized for episodic vertigo and transient right sided numbness. There was an incomplete Horner's syndrome on the left. She was diagnosed as having transient ischemic attacks secondary to cerebrovascular disease and was anticoagulated with coumarin and given papaverine. On this admission the patient developed ventricular tachycardia after four vessel angiography with minimal T wave changes and a prolonged Q2 interval. Hemoglobin was 14.2 gm%, total leukocyte count 7100/mm^3 with a normal peripheral blood smear and differential; serum glutamic oxaloacetic transaminase was 25 units, creatine phosphokinase 12 units. Urinalysis, serology, two hour postprandial blood sugar, triglycerides and erythrocyte sedimentation rate were normal. Cerebrospinal fluid had normal pressure, protein and cell values.

After discharge the patient had some genitourinary bleeding which was attributed to anticoagulants. The bleeding stopped after readjustment of coumarin dosage.

Four months prior to admission she developed aching in the left ankle and discomfort in the legs and thighs. There was no heat or redness, but there was swelling of the ankles. This did not respond to allopurinol or colchicine. A uric acid value was reported as elevated.

For about one month prior to admission the patient developed persistent epigastric pain aggravated by eating. This pain kept her awake nights, did not radiate and did not respond to milk or bland diet. There was anorexia and a 20-pound weight loss. The leg pain without swelling persisted.

Physical Examination: Height - 5'4½"; weight - 109 pounds; blood pressure - 120 systolic 70 diastolic; temperature - 98°F; pulse - 86/minute and regular; respirations - 22/minute. The pulses in all extremities were equal and full. Examination of the head and neck were unremarkable. The lungs were clear to auscultation and percussion. The heart was of normal size with sinus rhythm and no abnormal sounds. The abdomen was soft and nontender. There was a vague fullness in the midepigastrium. No masses or organs were palpable. There were prominent symmetrical varicosities of the extremities. Neurologic examination was negative.

CLINICAL PATHOLOGY DATA: Hemoglobin 12.8 gm%; red count 4.50 million/mm^3; hematocrit 39 vol%; mean corpuscular hemoglobin 29 micromicrograms; mean corpuscular volume 86 cubic micra; mean corpuscular hemoglobin concentration 33%; total leukocyte count 7,500/mm^3 with 66% segmented neutrophils, 5% eosinophils, 1% basophils, 28% lymphocytes. The red cells were normochromic normocytic and platelets were adequate on smear. Erythrocyte sedimentation rate was 92mm/hr. Urinalysis: straw colored, cloudy, specific gravity 1.026; pH, 5.0; protein, trace; negative for bile, glucose ketone bodies and hemoglobin; sediment 0-1 wbc/hpf, large amount of epithelial cells, calcium oxalate crystals. Serology was nonreactive, latex fixation test for rheumatoid arthritis was negative. Total protein, phosphorus, cholesterol, glucose, blood urea nitrogen, creatinine, lactic dehydrogenase were within normal limits. Uric acid was 4.2 mgs%, calcium 7.6 mgs%, total bilirubin 1.2%, alkaline phosphatase 120 units (normal 20-95 units), serum glutamic oxaloacetic transaminase 510 units. A two hour postprandial blood sugar was 198 mgs%, glucose tolerance - fasting 88 mgs%, one half hour 184 mgs%, two hour 136 mgs%, three hour 155 mgs%, four hour 110 mgs%, triglycerides 54 mgs%, PH 7.48 PCO2 36 mm of hg, CO_2 content 27 meq/L, sodium 133 meq/L, potassium 3.6 meq/L, chloride 102 meq/L, prothrombin time 21.0 seconds (control 11.5 seconds). Bromosulfonphthalein retention 37% in 45 minutes, T-3 resin uptake 26%. Creatine phosphokinase 5 units (normal). Serum protein electrophoresis - total protein 6.9 gm%, albumin 2.5 gms%, alpha - 1 globulin 0.4 mgs%, alpha-2 globulin 0.5 gms%, beta globulin 0.9 gms%, gamma globulin 2.6 gms%, total bilirubin 0.7 mgs%, direct 0.5 mgs%, indirect 0.2 mgs%, repeat alkaline phosphatase 3.1 units (normal 0.8-2.3 units). Three stools for occult blood were negative. Qualitative test for macroglobulins (Sia) and cryoglobulins was negative. Test for hepatitis associated antigen and fluorescent antinuclear tests were negative. Lupus erythematous tests showed much extracellular depolymerized material and tart cells but not typical LE cells. Hepatic scan showed some increase in splenic uptake but the liver was of normal size. Chest film was negative. Abdominal film showed gaseous distention of the small

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and large bowels. An intravenous pyelogram was negative. Upper gastrointestinal series showed slight prominence of the duodenal cap and a questionable duodenal ulcer. Repeat upper gastrointestinal series was negative. The cholecystrogram was poorly opacified. The patient had a reaction to telepaque and the study was not repeated. A vaginal Papanicolau smear was Class I. A diagnostic procedure was performed on the seventh hospital day.

DR. GREGORY NAUGHTON: In summary, we have a lady who developed some neurological signs, perhaps secondary to a vascular problem in the brain and who was put on anticoagulants. Subsequently, she returned with evidence of a multi-system disease which was progressive. However, in the second admission, her neurological examination was negative. The laboratory data revealed a markedly elevated sedimentation rate and an abnormal glucose tolerance test which was accompanied by abnormal liver function tests. These liver function tests had been negative previously. Of significance was the fact that a search for an occult malignancy by numerous x-ray studies was unrewarding. Protoscopic exam, pelvic exam and pap smear were also normal. There were moderate elevations of the serum glutamic oxaloacetic transaminase and the alkaline phosphatase with a marked abnormality of the bromosulfaphthalein retention. The prothrombin time was also prolonged, but the patient was on anticoagulants. The albumin was depressed and I assume the gamma globulin was increased in a broad peak as in a polycloal gamopathy.

DR. BARLOW: Correct.

DR. NAUGHTON: The low serum calcium probably reflects the decrease in the serum albumin. The abnormal glucose tolerance test would suggest involvement of the pancreas. This indication of abnormality of the pancreas, along with the negative search for occult malignancy could certainly point to the problem in this case being a carcinoma of the body or tail of the pancreas. A lack of detection by ordinary laboratory or other examinations is characteristic of this tumor. Epigastric pain, weight loss, and glucose intolerance would all fit the diagnosis of carcinoma of the body or tail of the pancreas. Of course, with carcinoma of the body or tail of the pancreas, there is no occult blood in the stool and no jaundice. The liver is the second most common site of metastases other than the regional lymph nodes for this tumor. Thus, the abnormal liver function tests could be explained also by carcinoma of the pancreas. The ankle, leg and thigh pain could have been due to thrombophlebitis, although we certainly do not have a characteristic description of the entity. Venous thrombosis has been recorded in 20 to 30% of the cases of carcinoma of the body or tail of the pancreas. This was first described by Sproul in 1938. The reason for this increased incidence of venous thrombosis and why it is more common in carcinoma of the body and tail of the pancreas than other tumors is unknown. The neurological picture could be explained by a metastatic lesion that had occurred and then become relatively quiescent. More likely, an embolus from non-bacterial thrombotic endocarditis which occurs in increased frequency in carcinoma of the body and tail of the pancreas could explain the neurologic picture. This entity of non-bacterial thrombotic endocarditis occurs in conjunction with many malignancies or associated debilitating diseases. It is interesting that Sproul described this in the article which is described above. In a recent article in May, 1959, in the **American Journal of Medicine,** there were 30 cases of non-bacterial thrombotic endocarditis. Carcinoma of the pancreas was prominent as the related malignancy. The absence of cardiac murmur does not exclude the diagnosis of non-bacterial thrombotic endocarditis because only one-third of the cases had a murmur. In fact, the last CPC that I discussed was this entity of non-bacterial thrombotic endocarditis with a cerebral embolus.

Another entity which would fit the symptomatology of the patient is periarteritis nodosa. The abdominal pain and weight loss is certainly consistent with periarteritis nodosa which can present a surgical abdomen. Lesions in the liver and gallbladder can occur with alteration of hepatic function. In fact, periateritis nodosa causes over 50% of cases of a rare entity, massive hepatic infarction. Pancreatitis may occur. The central nervous system involvement is common in periarteritis nodosa. The patient's pain in the lower extremities could be explained by muscle tenderness which is a well recognized sign in periateritis nodosa. Such tenderness is often used as a guide to indicate a site to biopsy in the diagnosis of this entity.

Other lesions that could involve the liver and pancreas are amyloidosis, hemochromatosis, sarcoidosis, tuberculosis, cirrhosis, or lymphoma. I do not believe the clinical data fit as well as the two I have already mentioned. However, none can be completely excluded.

Certainly retroperitoneal lymphoma or a post-necrotic cirrhosis could give this picture.

In concluding, I think the diagnostic procedure was either a liver biopsy, muscle biopsy, or exploratory laparotomy. I favor a liver biopsy.

DR. GREGORY NAUGHTON'S DIAGNOSES

1. *Carcinoma of the body or tail of the pancreas with non-bacterial thrombotic endocarditis.*
2. *Periarteritis nodosa.*

DR. BARLOW: Do any of the interns want to venture a diagnosis?

*DR. GENE BYRON: I agree with Dr. Naughton.

**DR. MILTON SMITH: I will go as far as saying that the diagnostic procedure was probably a liver biopsy.

†DR. STEPHEN KAHLER: Does the prominent spleen on scan suggest anything?

DR. BARLOW: Well, I'll show you the scan. You will note that the liver is not very enlarged. There is a widened gallbladder fossa. There is some mild mottling of the liver and the spleen is prominent and perhaps slightly enlarged. The reason the upper half of the spleen appears faded is that it is probably tilted posteriorly and this is an anterior scan. Usually, increased uptake in the spleen is associated with portal hypertension. In portal hypertension there is usually mottling of the liver from diffuse liver disease as well as more enlargement of the spleen. This scan picture could represent a mild degree of portal hypertension. (Figure 1)

*DR. SANFORD McDONALD: I think she had lupoid hepatitis.

**DR. WILLIAM O. ROSSING: That would be a very unusual entity in this age group. I followed this patient and did not recognize the protocol at first. Her major complaints were the aching in the legs and the thighs. I would also like to say that a fluorescent antinuclear antibody test was positive. The lupus erythematous cell test described in the protocol was also

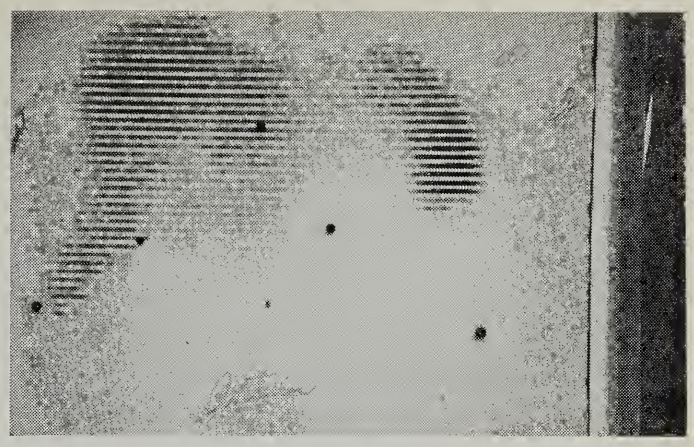

Figure 1

Liver scan as described in protocol. Center dot is xyphoid. Other dots represent costal margin.

rather suggestive with many tart cells and rare rosettes, and much extracellular depolymerized material.

DR. BARLOW: Yes, I tried to mention some of this in the protocol as this type of LE test is what I have seen before in the entity that the patient had. I do stand corrected in that the fluorescent antinuclear antibody test (FANA) was positive. Actually this positive test came back after the liver biopsy.

†DR. RICHARD A. JAQUA: I think you simply misread the report. This report was done at another laboratory before we were doing FANA tests. The way the report is written, it appears actually as if the test were negative, but if you read this computer print-out, the test is really positive.

DR. NAUGHTON: I don't think it makes too much difference as the FANA test is not that specific. Certainly it could have been positive in periarteritis nodosa, as a later fixation test for rheumatoid arthritis. The FANA test is a much more helpful test when it is negative, thus excluding lupus erythematosus and other collagen vascular diseases.

DR. BARLOW: As was guessed, the diagnostic procedure was a liver biopsy. This slide shows a rather marked infiltrate in the portal spaces. One can see that the infiltrate also involves the periphery of the lobules with isolation of hepatic cells. There is evidence of regeneration of hepatic nuclei with double nuclei as well as evidence of degenerative changes in the hepatic cells. Plasma cells, as well as leukocytes and histiocytes are seen in the infiltrate.

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What I have shown you, some pathologists would call chronic active hepatitis. (Figures 2 and 3)

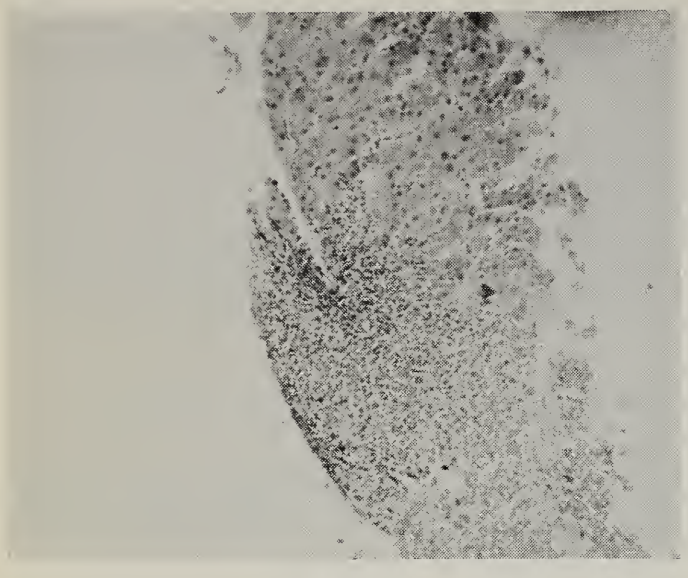


Figure 2
Note extensive portal infiltrate with destruction of limiting plate and invasion of lobule by inflammatory cells. This is the typical picture of chronic aggressive hepatitis (chronic active hepatitis) 40Y

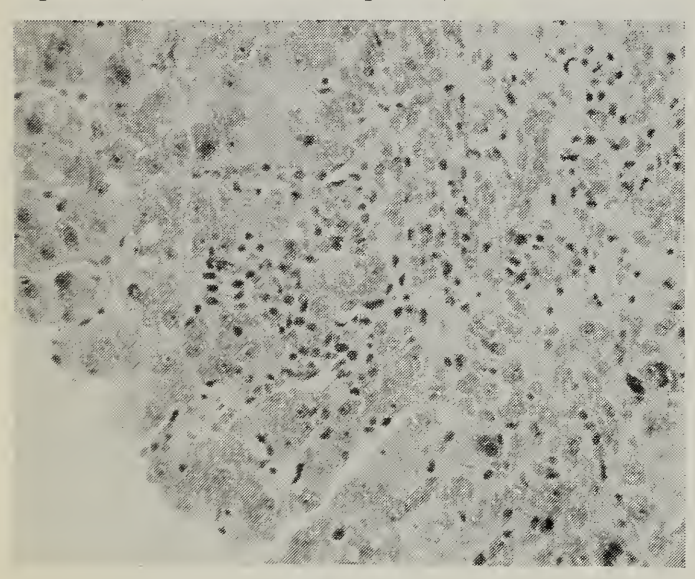


Figure 3
Higher power to show invasion of liver parenchyma by chronic inflammatory cells

Others would use the term of aggressive hepatitis. The particular liver biopsy pattern I have described has to be distinguished from viral hepatitis, the clinical picture of which certainly does not fit this patient and the pathologic picture of which is different with foci of necrosis and inflammation in the central areas and within the lobule as well as in the periportal regions. If the picture of viral hepatitis persists beyond three months, it is often called chronic persistent hepatitis, or chronic lobular hepatitis. A third entity is that of chronic portal hepatitis or chronic nonaggressive hepatitis, which consists of a portal infiltrate with some duct proliferation. However, the limiting plate between the lobule and portal spaces remains intact. There is not much fibrosis and the inflammatory cells do not invade the liver lobule as has been shown in this case. I think it is important to make these distinctions because the picture I have shown you, which shows active aggressive inflammation (or what Popper calls piecemeal necrosis) has a much worse prognosis than chronic lobular hepatitis or chronic nonaggressive hepatitis.

This patient shows the pathologic picture often described as chronic active hepatitis. However, this patient does not show all of the clinical signs and symptoms that one would expect in so-called lupoid hepatitis or chronic active hepatitis as described by clinicians in the literature. However, the pathologic pattern is what is described in this entity. The patient today is not a young female in whom chronic active hepatitis or lupoid hepatitis is supposed to occur most frequently. She did not have many of the clinical features of auto-immune disease, which she is supposed to have for this entity, but she did have a few of the serologic features such as equivocally positive LE test and a positive FANA.

I would also like to mention a young girl who had a clinical syndrome of chronic active hepatitis. She was pregnant, and her initial onset was similar to viral hepatitis. She had multiple exacerbations and remissions on steroid therapy. The original biopsy showed the piecemeal necrosis and infiltration of the lobule by inflammatory cells as I have described in the case today. The young girl went on to die, and her liver at autopsy showed a typical postnecrotic cirrhosis. Interestingly enough, she had very little inflammation in the liver at autopsy and one could not have guessed the etiology of the process from the autopsy tissue.

I asked Dave Rothenberger to review the entity of chronic hepatitis at the time, as I thought he did a rather nice job in summarizing the recent autopsy I mentioned above.

FINAL ANATOMIC DIAGNOSIS

1. Chronic Active Hepatitis

*DR. DAVID ROTHENBERGER: "Chronic hepatitis" implies a variety of conditions of differing patterns of onset, histopathology, clinical courses and relationships to cirrhosis, etio-

*Extern, Sioux Valley Hospital. (Mr. Rothenberger is a former student at the School of Medicine of the University of South Dakota and began attending Tufts Medical School in Boston in September, 1971.

logies and pathogenesis. The term "chronic" merely connotes a continuing clinical problem longer than three months duration, while the term "hepatitis" implies an inflammatory reaction which was initiated by injury of hepatocytes. Such an inflammatory reaction may be seen in the lobular parenchyma or in the portal tracts or in both sites and may become "self-perpetuating". (17).

The spectrum of chronic hepatitis is difficult to delineate largely because the lesion is not static and because the clinical, chemical, and morphologic assays used to assess the state of the disease are highly variable from case to case and do not necessarily parallel each other. One result of such variability is proliferation and subsequent confusion of terminology. Active juvenile cirrhosis, lupoid hepatitis, subacute hepatitis, autoimmune hepatitis, chronic viral hepatitis, plasma cell hepatitis, liver disease in young females with hyper-globulinemia, subacute hepatic necrosis, chronic liver disease in young people, cryptogenic cirrhosis, progressive hepatitis, and chronic active hepatitis have all been used interchangeably by some authors while others insist that each is a distinct process. (3, 4, 5, 6, 7, 12, 15, 17, 18). A review of the literature leads one to concur in the conclusion that such terms have been used to describe cases with some of the more unusual or florid manifestations of chronic active hepatitis (CAH) (13). With the present state of knowledge, it is best to consider these cases merely as clinical variants within the general category of chronic active hepatitis.

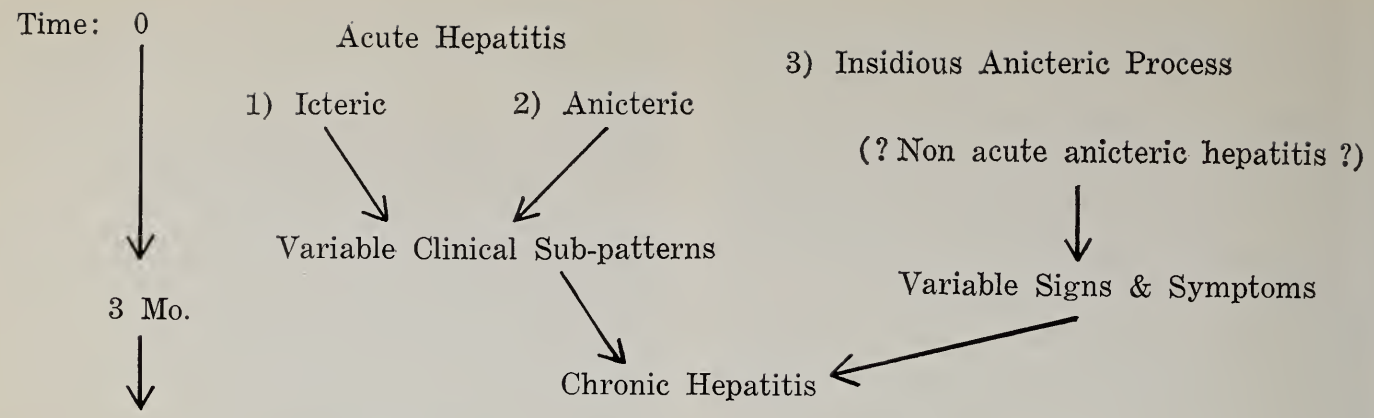
The concept of CAH itself is rather nebulous. The term "active" is a relative term and hard to define since morphologically all hepatitis is active (though not necessarily clinically active). If a hepatic process becomes inactive morphologically, it has usually progressed to cirrhosis, which most authors consider separately from hepatitis. As it is used today, the term "active" primarily describes the clinical exacerbations which punctuate a course of chronic hepatitis. Controversy exists as to whether CAH is strictly a clinical syndrome or a specific lesion which can be diagnosed on its histopathologic appearance alone. More will be said of CAH and this controversy later.

Some authors (17) feel that "transaminitis" or prolonged transaminase elevations in the absence of other abnormalities is not chronic hepatitis, but at least one research team (11) states that such persistent, isolated elevations of serum transaminase levels in asymptomatic patients are associated with portal triad inflammatory lesions (as proven by biopsy) and thus transaminitis is associated with, and indeed is, a form of chronic hepatitis.

As noted earlier, most authors prefer to exclude cirrhosis from classifications of chronic hepatitis, though all agree that both may coexist and that chronic hepatitis may lead to cirrhosis which is characterized by septa connecting central veins with portal tracts plus regenerative nodules of hepatocytes. (17). Some authors prefer, however, to consider cirrhosis as a **morphologically** inactive form of chronic hepatitis (13). It is doubtful that a morphologically inactive form of chronic hepatitis, exclusive of cirrhosis, exists.

PATTERNS OF ONSET: Clinically, three basic patterns of onset of chronic hepatitis exist. In one, acute icteric hepatitis, either of infectious or serum types, is followed by any of a number of clinical sub-patterns eventually resulting in chronic hepatitis. A second basic pattern is identical except that the patient initially suffers an attack of acute a**nicteric** hepatitis. The third pattern is without a clinically recognizable initial acute episode. In such cases chronic hepatitis is denoted by liver function studies, lab indices, and biopsies. The hepatitis develops insidiously without an acute attack, but presumably (though not certainly) following a non-acute anicteric hepatitis. The relative incidence of the icteric form (pattern one) and the two anicteric forms (patterns two and three) are not definitely established, but most agree that the anicteric forms of onset are the more frequent, probably in the ratio of three to one. (13-18). Schematically, these three patterns of onset are outlined as shown on the following page.

Common clinical sub-patterns seen after the initial acute attacks of hepatitis, both icteric and anicteric (patterns one and two) include the following: 1) persistence for many months or years of clinical, biochemical, and histologic abnormalities, usually without jaundice, and usually resulting in complete recovery according to all three indices; 2) repeated attacks of jaundice, usually of decreasing intensity, which signify recurring acute hepatitis as confirmed by biopsies; 3) persistence of elevated serum alkaline phosphatase, itching, and slightly elevated transaminase, but without the usual signs of liver cell injury such as malaise; 4)



neurasthenia; 5) sustained elevation of unconjugated serum bilirubin; 6) progression, with flare-ups of hepatic manifestations and jaundice interspersed with periods of remission; and 7) insidious progression after the initial acute episode over a period of months to years. A multitude of other sub-patterns exist, but these are typical of the varied clinical courses seen when an initial acute episode of hepatitis, whether icteric or anicteric, progresses to chronic hepatitis.

When chronic hepatitis develops in the absence of an initial acute episode (pattern three), the patient displays a wide variety of features which, in most cases, includes two or more of the following: slowly progressive jaundice, amenorrhea, marked anorexia, asymptomatic hepatomegaly, abdominal pain, epistaxis, acne, persistent fever, arthralgia, arthritis, renal disease, and colitis.

HISTOPATHOLOGY: As noted in the section on terminology, the variability of chronic hepatitis has resulted in considerable nosologic confusion. The same problem has arisen over the years in histopathologic classifications of chronic hepatitis. Group after group have proposed their own systems. However, a review of the literature reveals three major systems, two of which are compatible. The latter two systems were summarized by the European Association for the Study of the Liver in 1968 (4) and by Popper and Schaffner in 1971 (17). Tough terminology varies in these two systems, the terms are synonymous and, thus, these two classifications comprise one school of thought. They suggest that chronic active hepatitis (CAH) can be restricted to describe a clinical syndrome, and not be applied to a single pathological picture. Opposing this notion is a second school of thought which proposes that CAH does have a distinctive morphology (13). Both schools of thought are summarized below.

The classification systems suggested by the European Association for the Study of the Liver (4) and by Popper and Schaffner (17), are based primarily on pathologic appearances though clinical factors were considered as well. They grouped chronic hepatitis into three histologic categories which they say are morphologically distinct and are clinically significant since the three categories correlate with clinical course and prognosis. The three categories based on the overall appearance in a biopsy are: 1) Chronic lobular hepatitis—this pattern is characterized by spotty hepatocellular necrosis with associated inflammation identical to that seen in acute viral hepatitis. In fact, chronic lobular hepatitis is in effect acute hepatitis lasting for more than three months. The histologic appearance does not reflect duration of the hepatitis; therefore, a history is needed (17).

2) Chronic persistent hepatitis—chronic portal hepatitis: This pattern is characterized by a chronic inflammatory infiltrate of portal tracts, often associated with proliferation of bile ductules, but the lobular architecture or border between portal tract and parenchyma is preserved. There is little or no fibrosis, and piecemeal necrosis is absent or slight. Features of acute hepatitis may be superimposed. (4) (17).

3) Chronic aggressive hepatitis—chronic periportal hepatitis: This lesion is characterized by chronic inflammatory infiltration involving portal tracts and extension into the parenchyma plus piecemeal necrosis and formation of intralobular septa. The architecture is disturbed, but there is no nodular regeneration. Activity, as shown by piecemeal necrosis and inflammation varies from moderate to severe. Features of acute hepatitis may be superimposed. (4, 17).

According to this school of thought, CAH is a clinical syndrome and the term should not

be applied to a single pathological picture even though it is most often associated with a florid, highly active, chronic aggressive (periportal) hepatitis morphology. Despite the fact that this pathologic picture is usually seen in cases of CAH, it is not specific for two reasons. First, the same picture of chronic aggressive (periportal) hepatitis is sometimes seen in the absence of the clinical syndrome of CAH and secondly, liver biopsy in cases of CAH may show a variety of pathologic pictures, not all of them chronic aggressive hepatitis. (4).

Other authors, representative of the second school of thought regarding the histopathologic classification of chronic hepatitis, treat CAH as a lesion that can be diagnosed primarily on the basis of biopsy morphology. In fact, at least one group (13) states that although a provisional diagnosis of CAH can often be made from clinical findings, examination of biopsy sections provides the only reliable means of making an early, definite diagnosis. The most prominent histologic feature in the active phase is a hepatitis involving the parenchymal cells in the perilobular region which includes the area adjacent to both the portal tracts and the interlobular septums. The lesion is patchy, varying in severity not only within a single lobule but between lobules. Changes seen in the perilobular zone include parenchymal cell degeneration and piecemeal necrosis, inflammatory infiltrate, areas of regeneration, fibrosis extending from portal tracts and interlobular septums to surround groups of abnormal parenchymal cells, and ductular proliferation.

The inactive stage is characterized by fibrosis or cirrhosis, nodular or parenchymal regeneration, ductular and pseudoductular proliferation without significant parenchymal necrosis or lobular inflammation. The limiting plate is clearly defined in the inactive stage, though it is distorted and uneven from loss of parenchymal cells.

Two points should be made. First, the active stage of CAH is histologically very similar to the pattern described as chronic aggressive (periportal) hepatitis. Second, the inactive stage of CAH is identical, or almost so, to cirrhosis. As noted in the terminology section, most authors prefer not to include cirrhosis under the general heading of chronic hepatitis. Therefore, if they subscribe to the second school of thought which regards CAH as a distinctive histopathologic lesion, they would not subdivide CAH into active and inactive stages. However, they might talk in terms of degree of activity depending on how much inflammation, piecemeal necrosis, septation, and regeneration were present.

A schematic summary of the histopathologic classification of chronic hepatitis of both schools of thought follows:

School 1 (European Association for the Study of the Liver) †Popper and Schaffner	School 2
	Distinct Morphology of CAH
1. Chronic Lobular Hepatitis	
2. Chronic Persistent Hepatitis—Chronic Portal Hepatitis	1. Active stage
3. Chronic Aggressive Hepatitis—Chronic Periportal Hepatitis	2. Inactive stage

CLINICAL COURSES AND RELATIONSHIPS TO CIRRHOSIS

To attempt to outline the many clinical pictures seen in chronic hepatitis is beyond the scope of this paper. Instead, the most characteristic clinical features of each of the histopathologic categories of School 1 are noted briefly. It should be remembered that one of the proposed advantages of School 1's system is that each of the three categories correlates fairly well with a clinical course and is predictive of the ultimate prognosis of that form of chronic hepatitis. Following this brief resume, a more thorough, though far from complete, summary of the clinical course of CAH is made. As noted earlier, School 1 proposes that CAH be restricted to this clinical picture while School 2 suggests that the clinical picture of CAH is accompanied by a specific histologic lesion. With the exception of lupoid hepatitis, which has received considerable attention in the last few years, no attempt is made to consider each of the many unusual manifestations of CAH noted in the section on terminology. It must also be remembered that any of the clinical forms of chronic hepatitis discussed below could have resulted from any of the three patterns of onset noted above. The immediate discussion concerns itself with the clinical course of patients who are already diagnosed as having one of the forms of chronic hepatitis. The reader is referred to a review article by Mistilis and Blackburn (13) for a more thorough discussion of CAH.

Patients with chronic lobular hepatitis present a varied picture. The clinical and laboratory features may be mild and include transaminase elevations and fatigability or they may

be conspicuous, as in full-blown acute viral hepatitis. The disease may last for years and suddenly disappear. Unless combined with periportal hepatitis, no specific therapy is required (17).

Chronic persistent (portal) hepatitis is associated with few, if any, clinical signs except for variable fatigability, hepatomegaly, and transaminase elevations. Though there is so far no morphological feature by which a transition to cirrhosis can be predicted, several authors feel that the prognosis of such a lesion is generally good. It is not thought to lead to cirrhosis and does not require specific therapy. (4, 17).

The clinical signs of chronic aggressive (periportal) hepatitis vary, with fatigability the most common symptom. Transaminase values fluctuate widely, but serum gamma globulin levels are usually high except in hypogammaglobulinemia. Chronic aggressive hepatitis may lead to cirrhosis, especially if fibrosis develops around peripheral hepatocytes or if septa form around proliferated bile ductules. The danger of such a progression to cirrhosis exists regardless of the duration of the lesion. In the presence of chronic lobular hepatitis, however, the duration of the liver disease must be considered since piecemeal necrosis is also part of acute hepatitis. Therefore, if a combination of lobular and periportal hepatitis is found in a patient sick for longer than three months, the condition should be considered aggressive. The longer the combination persists, the less likely recovery becomes. (4, 17).

The clinical syndrome of CAH, whether associated with a specific histologic picture or not, is seen in both sexes and in all age groups, though up to 80% of the cases are in females and 50% have their onset between the ages of 10 and 30 years. (13). Onset can occur via any of the three basic patterns noted earlier in this paper, with about one-third experiencing an abrupt onset indistinguishable from that of acute infectious hepatitis while two-thirds experience an insidious onset. Such patients usually display hepatomegaly, splenomegaly, fever, anorexia and spider nevi at the time of initial diagnosis of CAH. They are deceptively healthy-appearing and often free of jaundice, or, at most, moderately jaundiced. Recurrent episodes of active liver disease usually developing insidiously over a period of weeks and often following undue exertion or intercurrent infection or arising spontaneously, often punctuate the clinical course (10). During such episodes, the patients may complain of jaundice, moderate anorexia, extreme fatigue, vague upper abdominal pain, fever, bruising, purpura, acne, splenomegaly, a tender and enlarging liver, and arthralgia. The spectrum of severity of such episodes is considerable varying from weakness and malaise with mild elevation of SGOT levels to jaundice with hepatic failure. The course of the disease is unpredictable; many patients may recover from such episodes but with grossly impaired hepatic function. Hepatic encephalopathy and coma, portal hypertension, ascites, and varices are found in the later exacerbations. The disease ultimately becomes inactive in half the cases by which time cirrhosis is established. The liver is smaller and the spleen larger. Patients may remain asymptomatic for variable, often long periods, but episodes of gastrointestinal bleeding, ascites, and hypersplenism eventually dominate the clinical picture. The mortality is highest early in the illness when the disease is most active, the prognosis improving with time. Mortality in one series was greater in patients with hepatitis-like onset, persistent cholestasis, associated colitis, episodes of hepatic coma, ascites, prolonged jaundice or extensive necrosis on liver biopsy. Age, sex, positive LE reactions, extreme hyperglobulinemia, the involvement of organs other than the colon, and severity of jaundice did not appreciably affect prognosis (13).

Patients with clinical CAH usually have characteristic liver function tests and hematologic findings. Serum bilirubin is elevated, though rarely above 20 mg% and usually less than 10 mg%, thus being consistent with the minimal jaundice usually observed clinically. Hyperglobulinemia is present in most cases, but its diagnostic value has been overemphasized since similar degrees of hyperglobulinemia have been reported in other forms of liver disease and since most patients with CAH may have normal or low serum globulin levels. The SGOT level is elevated, though rarely greater than 500 units/ml (Serial SGOT determinations currently provide the best biochemical means of assessing therapeutic progress, especially in relation to drug therapy. Blood coagulation is disturbed and, thus, prothrombin time is altered significantly. An increase in serum alkaline phosphatase to levels consistent with the degree of cholestasis is commonly found. Hypoalbuminemia, with levels below 3.0 mg% may persist in patients with whom

cirrhosis develops. Such biochemical assays are most altered during active episodes, but may return to normal or near normal during the inactive stages, except for mild degrees of hypoalbuminemia and varying degrees of BSP retention. Thrombocytopenia with platelet counts below 100,000/mm^3 is a prominent feature in about half the cases. This may be associated with leukopenia and anemia in the precirrhotic stages.

Endocrine changes associated with CAH are amenorrhea in about 40%, acne in about 20%, hirsutism and Cushingoid facies in about 5%. Systemic manifestations commonly seen in clinical CAH are chronic diarrhea in 30%, ulcerative colitis in 15%, skin lesions—usually an erythematous rash of the face—in 20%, polyarthralgia in 20%, positive LE reaction in 15%, glomerulonephitis, pleurisy, and pericarditis in 7% (13).

The term lupoid hepatitis has been used to describe a syndrome of CAH usually seen in young women and characterized by striking hypergammaglobulinemia and abnormal serologic reactions, usually including a positive LE reaction (1, 7). According to the original use of the term, a positive LE reaction was a prerequisite, but others have dropped this criterion and use the presence of any of a number of abnormal serologic reactions as sufficient criteria to label a case of CAH "Lupoid" (3). Other immunologic markers and abnormal serum reactions include serologic reactions for syphilis; antinuclear, antismooth muscle, and antimitochondrial antibodies; various complement fixing reactions, and latex and sheep agglutinations to name only a few (5, 8, 9, 12, 13, 15). As yet the significance of these abnormal serologic and tissue antibody reactions is not known. Their significance is currently the subject of much speculation. Some authors have suggested that the deposition of antigen-antibody complexes in tissues may account for many of the systemic reactions of CAH like fever, arthralgia and dermatitis (17). The morphologic picture of hepatitis does not reflect these immunologic manifestations seen in clinical lupoid hepatitis, although plasma cells are present and lymphoid activation is seen in the liver and elsewhere in half the cases (17).

ETIOLOGIES AND PATHOGENESIS

The etiology of chronic hepatitis is usually not definitely established, but one can usually by history, biopsy, and clinical course rule out diffuse hepatitis due to alcohol abuse, infected biliary obstruction, or hepatotoxins. Exclusive of these etiologic agents, only two other agents are implicated in the causation of chronic hepatitis. The first is a viral infection and the second is a basic disturbance of immunity. The evidence for each theory is summarized by Mistilis and Blackburn (13) and Popper and Schaffner (17).

Several points should be emphasized. First, a virus has not been isolated and as yet there is no direct evidence to support an autoimmune causation. Thus, both theories are open to question. Secondly, even if a virus is responsible for the onset of the disease, one must ask what perpetuates the disease. Several proposed mechanisms for self-perpetuation of chronic hepatitis, including autoimmune, circulatory, and viral mechanisms, were summarized by Popper and Schaffner (17). Third, chances are that many etiologic agents, not just one or two, are responsible for the varied picture of chronic hepatitis.

In conclusion, the variety of clinical, histopathologic, chemical, and immunologic features seen in chronic hepatitis is highly suggestive that chronic hepatitis is in reality a variety of disease entities. However, until the etiology and pathogenesis of chronic hepatitis are understood, noncommitted topographic terms such as those summarized above are preferable for present purposes of description and of making the important differentiation from cirrhosis.

*DR. E. W. SANDERSON: Is asthma associated with this entity of chronic active hepatitis?

MR. ROTHENBERGER: I saw it mentioned in one of the articles, but it is only rarely associated with the entity and may be coincidental.

DR. SANDERSON: I was just wondering since I have a patient who has asthma and had a clinical picture of chronic active hepatitis.

DR. STEPHEN KAHLER: Do the LE preps, and FANA become negative in remission?

†DR. RICHARD JAQUA: The LE test, of course, is an all or none phenomena. The response in the serology of the antinuclear antibody can best be followed with the fluorescent test which is reported in a titre.

---

*Specialist in Internal Medicine, Sioux Valley Hospital; Clinical Faculty, School of Medicine, University of South Dakota.

DR. E. W. SANDERSON: I think that one can make the clinical diagnosis of this entity and treat it without a biopsy of the liver, which I feel has a definite hazard.

DR. GREGORY NAUGHTON: In this case, I do not feel that one could have gone on to treat this patient without a biopsy. The clinical data is just not enough to substantiate it. In general, I would rather have a biopsy. I suppose that is a rather strong statement, but in most cases unless a biopsy is contra-indicated, I would think it is wise to have one.

DR. WILLIAM O. ROSSING: I think that I would not have treated this patient without a biopsy.

DR. BARLOW: I feel that the biopsy is not without hazard, but certainly not without any more hazard than steroid therapy. I think that the clinical lack of correlation in this disease has been well pointed out by this particular case. I hope that everyone is sufficiently confused. I do think that the histologic picture on liver biopsy can be helpful to the clinician provided he knows exactly what the pathologist means. There is some prognostic value. There is also no doubt that there is an entity clinically, often in young girls, with hyperglobulinemia, serologic abnormality such as positive FANA and positive LE preps, often associated clinically with other diseases or entities thought to be auto-immune in nature. However, this clinical entity is not the only one in which a chronic active or aggressive hepatitis can be seen on liver biopsy. In fact, a drug hepatitis can cause this histologic picture.

†Pathologist, Sioux Valley Hospital; Associate Professor of Pathology, School of Medicine, University of South Dakota.

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The 22nd Annual Postgraduate Course in Pediatrics of The University of Texas Medical Branch will be held in Galveston, Texas, March 15 and 16, 1973. The course will emphasize "Problems of Office Pediatrics" with guest lecturers Victor C. Vaughan, III, M.D. and John B. Reinhart, M.D.

This program is acceptable for 12 prescribed hours by the American Academy of General Practice and registration fee will be $75.00. Further information will be furnished by Lillian H. Lockhart, M.D., Chairman, Pediatric Postgraduate Committee, The University of Texas Medical Branch, Galveston, Texas 77550.

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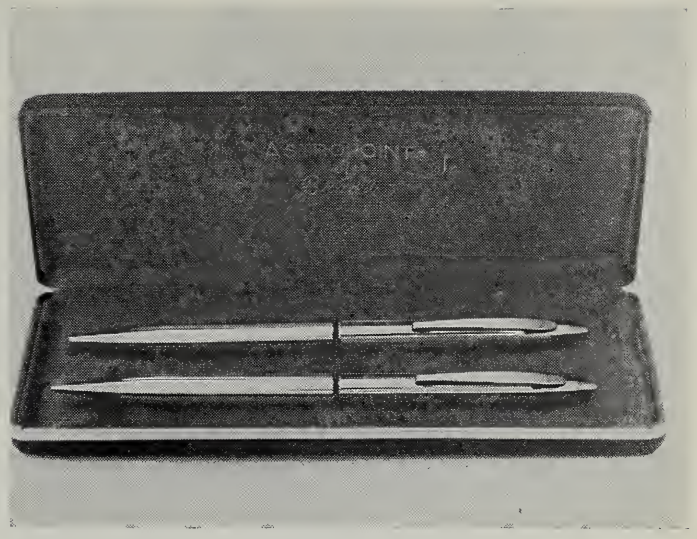

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Dale A. Bergeron, M.D., FACP, internist at the Rapid City Medical Center, Rapid City, has been made a diplomate of the American Boards of Nuclear Medicine. His nuclear medicine training was completed at San Francisco after which he taught two years in the Department of Nuclear Medicine at the U. S. Public Health Service in San Francisco. Acquiring the boards, Dr. Bergeron now holds full specialty status in Internal Medicine as well as Nuclear Medicine with subspecialties in pathology and radiology. He has been associated with the Medical Center since August 1970.

* * * *

E. J. Gerloff, administrator of the Donahoe Clinic, Sioux Falls, was elected president of the Midwest Section of the Medical Group Management Association. The Midwest Section includes twelve states and approximately 300 member clinics. The Medical Group Management Association is a non-profit corporation dedicated to the improvement of medical group management practices through an extensive array of educational and research oriented activities.

* * * *

The South Dakota School of Medicine announced the appointment of Roderick Reinke, Ph.D. as Assistant Professor of Physiology and Pharmacology and Mary Lindenheil as a physiology instructor.

The following physicians were elected to Fellowships in the American Academy of Family Physicians at Madison Square Garden on September 26: **R. C. Jahraus, M.D.** and **C. L. Swanson, M.D.,** Pierre; **John Devick, M.D.,** Colton; **L. J. Sweeney, M.D., Peter Lakstigala, M.D.** and **V. V. Volin, M.D.,** Sioux Falls; **Clifford Binder, M.D.,** Chamberlain; **Romans Auskaps, M.D.,** Watertown; **A. P. Reding, M.D.,** Marion; **Carlos Kemper, M.D.,** Viborg; **C. S. Roberts, M.D.,** Brookings; **William Hanson, M.D.,** Huron; and **Roscoe Dean, M.D.,** Wessington Springs.

* * * *

Robert Hayes, M.D., Pierre, spoke on "Health Progress and Priorities in 1973" at the University of South Dakota School of Nursing capping ceremony.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

E. S. Watson, M.D., Brookings, was honored at a recognition dinner sponsored by the Brookings Area Guidance Center and the Brookings County Mental Health Association. Dr. Watson has retired from active practice of medicine after serving the Brookings area since 1939 and will move with his wife to the West Coast.

* * * *

At a recent convention of the South Dakota Nursing Home Association **John Lowe, M.D.,** Vermillion, participated in a discussion on "Emergency Preparedness in Nursing for Nursing Homes." **G. Robert Bartron, M.D.,** Watertown, also participated in a panel discussion during the regular session.

* * * *

Wayne Jackson, M.D., Holdrege, Nebraska, who formerly practiced in Winner from 1968-1971, was killed in a car accident along with two of his children.

* * * *

The Medical Arts Center has announced the association of **Larry Sittner, M.D.** in the general practice of medicine. Dr. Sittner graduated from the University of Nebraska College of Medicine and Interned at Immanuel Hospital in Omaha.

* * * *

The Blue Shield Board of Directors will meet at the Downtown Holiday Inn in Sioux Falls on Friday, December 15th, at 9:00 A.M.

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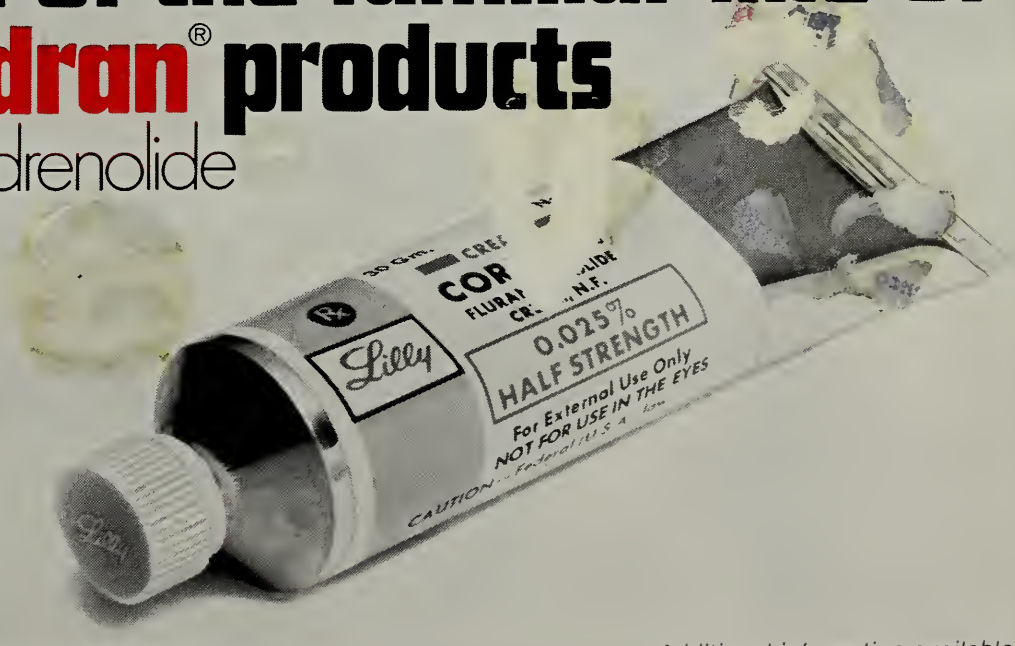

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Precautions: If combined with other psychotropics or anticonvulsants, consider carefully pharmacology of agents employed; drugs such as phenothiazines, narcotics, barbiturates, MAO inhibitors and other antidepressants may potentiate its action. Usual precautions indicated in patients severely depressed, or with latent depression, or with suicidal tendencies. Observe usual precautions in impaired renal or hepatic function. Limit dosage to smallest effective amount in elderly and debilitated to preclude ataxia or oversedation.

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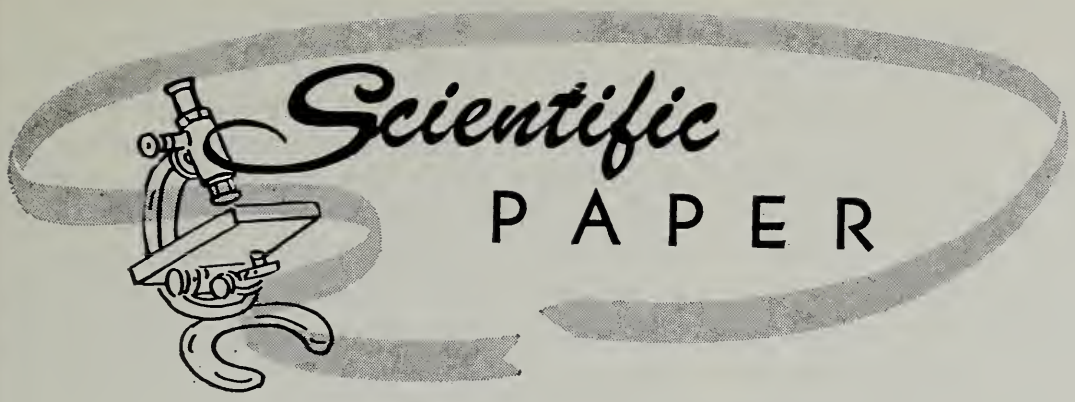

TREATMENT OF CARDIOGENIC SHOCK II

BY

Lawrence S. Cohen, M.D.
Professor of Medicine
Chief of Cardiology
Yale University School of Medicine
New Haven, Connecticut

Assisted Circulation

As indicated in Part I of this review, the major abnormality in cardiogenic shock is failure of the left ventricle as an effective pump. To this end considerable effort has been expended in the development of cardiac assist devices to help the left ventricle which has been damaged as a consequence of a myocardial infarction.

Many lessons concerning prolonged assisted circulation were learned from surgical procedures utilizing extracorporeal circulation. Although the heart-lung machine may take over completely the functions of oxygenation and pumping of blood, there are many limitations to this technique for patients in cardiogenic shock. The need for a thoracotomy in a critically ill patient virtually rules out any potential efficacy of this approach. In addition, the problems of hemolysis, plasma protein changes, clotting, infection and post perfusion lung make prolonged extracorporeal circulatory techniques unfeasible for patients with cardiogenic shock.

Modifications of total extracorporeal circulatory assist have been utilized as temporary measures to help support a failing circulation. **Veno-arterial** pumping is one of these modifications. With this method, blood is withdrawn through a cannula introduced into the central venous system from the femoral vein. Blood is pumped into the arterial system from the femoral vein. If the venous blood is passed through an oxygenator the patient is on partial heart lung bypass for all practical purposes. If no oxygenator is utilized the procedure is much simpler but anticoagulant drugs still are necessary to prevent clotting within the system. It has been demonstrated that the lower body and extremities can tolerate prolonged periods of perfusion with venous blood.

Left Heart Bypass

This method of assisted circulation removes oxygenated blood from the left atrium and returns it to the systemic circulation. By so doing, flow to the left ventricle is diminished by the amount removed from the left atrium. The pump is in series with the right ventricle and lungs but in parallel with the left ventricle. By reducing cardiac inflow the distended left ventricle is given some degree of rest. It is likely that myocardial oxygen consumption is diminished as end diastolic ventricular volume and radius are decreased. Left heart bypass may be accomplished with or without thoracot-

Prepared for this Journal by the South Dakota Heart Association

omy. In the context of a patient in cardiogenic shock, a method requiring thoracotomy is obviously not feasible. As an adjunct to postoperative care this method has been utilized with some success.

A method of left heart bypass which does not require a thoracotomy has been developed. A transseptal cannula introduced into the external jugular vein is passed across the atrial septum into the left atrium. Although this method of cardiac assist was reported over ten years ago, there is still no clinical trial demonstrating its efficacy for patients after a myocardial infarction.

Although any of the above mentioned forms of assisted circulation do reduce the flow work of the left ventricle, it has been demonstrated that myocardial oxygen consumption is much more closely related to pressure work. A method of assisted circulation that reduced the pressure work of the left ventricle would theoretically be of considerable benefit in reducing myocardial oxygen requirements.

Arterio-arterial pumping or counterpulsation is a form of assisted circulation that can reduce the systolic pressure against which the left ventricle must pump. In addition counterpulsation raises aortic diastolic pressure thereby increasing coronary bloodflow. In 1961 Harken, et al., reported on a counterpulsation device which involved cannulation of the femoral arteries. By synchronization with the electrocardiogram the pump aspirated blood from the femoral arteries during cardiac systole and returned blood to the central circulation during cardiac diastole. Considerable diastolic augmentation was achieved. Other investigators using synchronized counterpulsation in dogs found that myocardial oxygen consumption decreased by over 20 per cent and coronary bloodflow was increased by 50 per cent.

A variation upon the method of counterpulsation is that produced by the use of an intra-aortic balloon. This technique involves the inflation of an intra-aortic balloon at the onset of diastole and its deflation at the onset of systole. The advantages of this method are that it is totally intravascular and no blood is handled outside the body. There is less hemolysis in this technique than in counterpulsation devices which depend upon aspiration and return of blood to the vascular system for their hemodynamic effects. Heparin must be used, however, because of clotting of blood around the balloon. Rupture of the balloon with introduction of gas emboli into the vascular system is a potential hazard. Damage to the aortic wall by overdistention of the balloon may occur. Although an arteriotomy must be made for introduction of the balloon into the vascular system, there is no need for the diversion of blood through a conduit of foreign material.

Because of the desirability of having a cardiac assist device which is completely non-invasive, counterpulsation utilizing external body compression has been a goal of several groups of investigators. Such a device could be applied quickly, be free of any extracorporeal handling of blood, have no need for anti-coagulants and would not involve any operative intervention. Because of these features it might be available to a patient earlier in the course of cardiogenic shock before prolonged hypoperfusion of vital organs made survival unlikely. Counterpulsation of the extremities involves displacement of blood retrograde into the central aorta during diastole and increasing the capacity of the arterial system during systole so as to draw blood from the aorta.

Dennis and his associates utilized a pressure sleeve on the hindlimbs of dogs and applied synchronous counterpulsation. Osborn utilized a half-body pressure suit but this was found to be uncomfortable when applied to normal volunteers. Keith found similar results when human volunteers were utilized. Soroff and his associates have also evaluated external pressure suits with and without simultaneous external cardiac massage. The combination of external assist plus external cardiac massage was more successful in resuscitating dogs who were in ventricular fibrillation than was external assist alone.

In 1968 a series of physiologic studies leading to the development of an external cardiac assist device called The Sequenced Pulsator was initiated by the author and several of his colleagues. The rationale of sequenced pulsation in contrast to nonsequenced external pulsation is based on theoretical considerations underlying the effect of externally applied pressure to varying sized vessels in the extremity. Large vessels with a small wall thickness to lumen ratio more readily collapse in response to externally applied pressure than do smaller vessels which have a large wall thickness to lumen ratio. A uniformly applied external pressure to an extremity during diastole would therefore be anticipated to collapse the larger, proxi-

mal vessels first, thereby impeding return of blood to the central aorta.

The sequenced pulsator consists of arm and leg sections which are divided into multiple zones, each of which may be individually and separately activated to externally compress the enclosed body tissue. Activation is accomplished by inflating a chamber in each zone with compressed air. Flexible hoses connect the pressure enclosures for the arms and legs to the pressure and time controller. The electrocardiographic signal from the patient directs the sequenced inflation of the zones through a series of solenoid valves. At the onset of the QRS complex, all pressure is simultaneously evacuated from the extremity cuffs. With such a mode the heart will never pump against a pressure wave produced by the assist device. The onset of cuff inflation can be set manually according to the length of cardiac systole. At the onset of cardiac diastole the sequenced pressure inflation is begun. By inflating the cuffs at the beginning of diastole, blood is returned to the central circulation wtih a consequent rise in central aortic pressure. When the ventricle contracts there is diminished resistance in the periphery due to the previous emptying of arterial blood into the central circulation during the previous diastole. Sequenced pulsation has a milking effect upon the arterial and venous beds as pressure is applied sequentially from more distal to proximal sites. Although the sequenced pulsator has not yet been utilized in the therapy of patients in cardiogenic shock, the preliminary laboratory results indicate that external sequenced pulsation can augment cardiac output and aortic diastolic pressure.

Circulatory assist devices have the combined aim of decreasing left ventricular work and also of increasing coronary bloodflow. By so doing it is hoped that a severely damaged left ventricle may be able to compensate and take over from the support device. Since cardiogenic shock is likely to be self perpetuating once prolonged hypoperfusion of vital organs occurs, earlier application of assist devices may help certain patients in cardiogenic shock. It must be recognized, however, that even with the early application of an assist device ischemic areas of myocardium may progress to the stage of necrosis. Acute revascularization of the myocardium with a saphenous vein bypass graft may be helpful and necessary in selected cases. The role of the circulatory assist device in these instances will be to stabilize the patient while diagnostic studies such as selective coronary arteriography are performed. The success of this approach will have to be assessed as experience with saphenous vein bypass grafting increases and the long range prognosis of the grafts becomes clearer.

ANNOUNCEMENT

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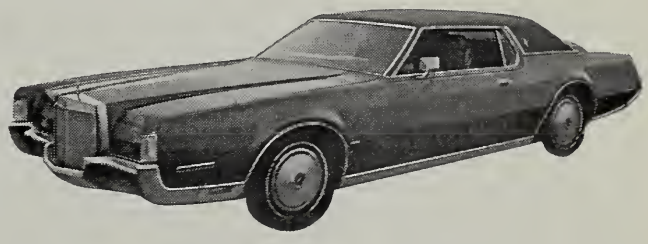

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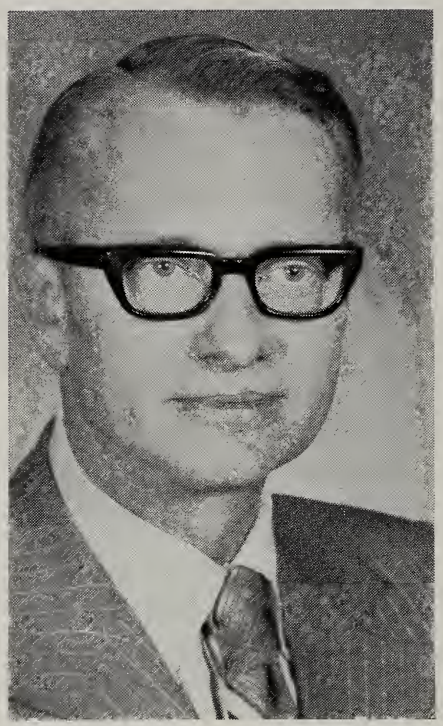
PRESIDENT'S PAGE



Since my last report to you in regard to medical education in the November Journal, the results of the poll of members of the Association have been coming in. At the time of this writing (11-1-72), a response has been received from 239 of the 448 South Dakota physicians to whom the questionnaire was sent (53%), and the response has been as follows:

Question #1—Re continued funding of the 2 year school

Agree—	200
Disagree—	8
Didn't answer—	25

Question #2—Re pilot program of a four-year degree granting program beginning in Yankton and Sioux Falls.

Agree—	174
Disagree—	49
Didn't Answer—	10

This indicates that 79% of the physicians in the state approve of the degree granting program as presented.

Your Medical Education Committee is now proceeding with appropriate public relations and information sessions with the Board of Regents, legislators, medical students and faculty, and the administration of the University.

W. R. Taylor, M.D.
President

CLINICOPATHOLOGICAL CONFERENCE

From the Intern and Resident Teaching Conferences at the Sioux Valley Hospital, conducted by the Department of Pathology of the Hospital and of the School of Medicine of the University of South Dakota

John F. Barlow, M.D., FCAP**
Pathologist - Editor

Howard B. Shreves, M.D.*
Surgeon - Discusser

FIFTY-NINE YEAR OLD FEMALE WITH ABDOMINAL PAIN OF TWENTY-FOUR HOURS DURATION

CASE NO. 70-4934

This 59-year old Caucasian female entered Sioux Valley for fever and abdominal pain of twenty-four hours duration and for evaluation of a harsh systolic murmur which had not been previously heard.

Twenty-three years previous to this admission, the patient was hospitalized twice for vomiting and loose stools with mucus but without blood. She had had a cholecystectomy four years previously, but had had no stones in the gallbladder. She also gave a history of "peptic ulcer" two years previously. Barium enema studies were normal. She was seen also at Mayo Clinic for similar complaints. A diagnosis of psychoneurosis was made.

Twenty-two years previous to admission, she was again admitted with complaints of vomiting, belching, and severe abdominal pain. There was no hematemesis or melena. Examination of the heart at this time revealed a regular heart rhythm at the rate of 112/min. with no murmurs. Upper gastro-intestinal series with small bowel follow through examination revealed changes consistent with regional enteritis. At laparotomy she had extensive jejuno-ileitis extending about three feet from ligament of Trietz to approximately two feet above the ileo-cecal valve. A side-to-side anastomosis of the proximal jejunum to the distal ileum was made to short circuit the diseased bowel, leaving the involved bowel intact. It was thought that the disease was too severe for more surgery at this time.

Because of back pain six months later the patient was again explored. The proximal loop of jejunum was closed so that a complete jejunol-ileal bypass was established. The inflammatory process of the bowel and mesentery had subsided considerably but was still present.

After this second operation she gained weight from 85 to 150 pounds and was much improved symptomatically. Three years later (nineteen years before admission) she was admitted for blood transfusions because of anemia. She continued to have very mild intermittent abdominal pain and diarrhea. Five years prior to admission the hemoglobin was 11.4 gm%.

Six years prior to admission she again developed severe abdominal cramps, diarrhea, and nausea which slowly progressed in spite of low residue diet and antispasmodics. She was admitted 22 months prior to her present admission. At laparotomy a new area of proximal involvement was found in the jejunum. The terminal ileum was still normal. An end-to-side jejuno-ileal bypass short circuiting old and new diseased bowel was performed. Hemoglobin on this admission was 12.6 gm%. Physical examination of the heart and lungs was negative with blood pressure of 114 systolic and 82 diastolic.

Two months prior to the present admission, the patient had noted easy fatigueability, but complained of no diarrhea or other abdominal complaints until one day prior to admission when she developed fever up to 102° and diffuse abdominal pain. The review of systems was negative

PHYSICAL EXAMINATION: Slightly built, well nourished. Blood pressure 130 systolic and 80 diastolic. Significant physical findings included a harsh grade III to IV systolic murmur (6 grades) near left sternal border transmitted weakly into the neck and to left scapula. There was no diastolic murmur. The left side of the abdomen appeared distended and tender without spasm; no organs or masses were felt. Bowel sounds were hypoactive.

CLINICAL PATHOLOGICAL DATA: Urinalysis - straw-colored, cloudy, specific gravity - 1.020, pH - 5.5, 2+ protein, negative for glucose, ketones, bile, hemoglobin, sediment - 0-2 leukocytes/hpf, 6-8 erythrocytes/hpf; hemoglobin - 11.9mg%, red blood count, 3.84 million/mm^3, hematocrit - 37 Vol%, mean corpuscular hemoglobin - 30 micromicrograms, mean corpuscular volume - 95 cubic micra, and mean corpuscular hemoglobin concentration - 32%. Total leukocyte count - 7,200/mm^3 with 57% segmented neutrophils, 29% neutrophilic bands, 1% eosonophils, 10% lymphocytes, and 3% monocytes. There was toxic granulation of the polys with Dohle bodies. The red cells were normochromic, normocytic. The platelets appeared adequate on smear. Erythrocyte sedimentation rate was 42 mm/hr. Repeat hemogram was essentially the same one day later except that there were 29% segmented neutrophils, 47% neutrophilic bands, 20% lymphocytes, and 5% monocytes on differential. A serologic test for syphilis was non-reactive. On admission pH - 7.50, pCO_2 - 40 mmHg, CO_2 content - 31 meq/L, sodium - 139 meq/L, potassium - 3.6 meq/L, chloride - 100 meq/L. After admission and potassium supplements, pH - 7.35, pCO_2 - 47 mmHg, bicarbonate - 26 meq/L, sodium - 135 meq/L, potassium - 4.2 meq/L, chloride - 100 meq/L. Total protein - 6.1 gm%, calcium - 8.0 mgs% (normal 8.3 - 10.3 mgs%), phos-

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**Pathologist, Sioux Valley Hospital; Professor of Clinical Pathology, School of Medicine, University of South Dakota

Supported in part by Clinical Cancer Training Grant T12 CA 08032 from the National Cancer Institute of the National Institute of Health, U. S. Public Health Service

phorus - 2.6 mgs% (normal 2.5 - 3.6 mgs%). Cholestrol 150 mgs%, glucose - 160 mgs%, blood urea nitrogen - 9 mgs%, uric acid - 6.2 mgs%, creatinine - 0.8 mgs%, lactic dehydrogenase - 250 units (normal 70-200 units), serum glutamic oxaloacetic transminase - 26 units, amylase was 31 units (normal). Urine culture revealed no growth. Blood culture grew bacterioides species sensitive to chloromycetin and tetracycline. Electrocardiogram showed left axis deviation and ST segment changes over the postero-lateral surface consistent with ischemia in absence of digitalis. A chest film was normal. Abdominal films showed a soft tissue mass in the left mid and lower abdomen with vague calcific density within it. It was questionably renal. Supine, erect, and lateral decubitus films revealed no free air.

After admission, the patient became febrile with temperature up to 104°F. The abdomen was tympanitic and tender in spite of nasogastric suction. Bowel sounds were absent. An operation was performed.

DR. BARLOW: This case was an unusual complication of a relatively common disease. This diagnosis is almost impossible to make and, therefore, I thought that we would discuss this as a case presentation instead of a routine CPC.

DR. H. B. SHREVES: As you can see from the protocol, I saw this patient in 1949. She had just been referred to me by a physician in Iowa, who told me that she had been on the neuropsychiatric ward at the Mayo Clinic for some time. Because this physician did not believe this lady had a psychiatric problem, he asked me to evaluate her. She had a doughy belly and on reviewing the work-up, the only thing that had not been done was a small bowel follow through with barium contrast material. We did this and the radiologist, Dr. Larson, called me immediately saying this was one of the most extensive cases of enteritis that he had ever seen. At operation, the bowel was so edematous and involved that only a side to side bypass anastomosis could be done. The terminal ileum was not involved. During the next few months, the patient had remarkable response and we felt that we could go back and do a complete jejunal-ileal bypass. This was done. The inflammatory process had made a remarkable regression. Subsequent to this time, the patient had a rather substantial weight gain and did very well over the next fifteen years or so in spite of minor problems. However, she lived a reasonably normal life and made a gratifying response to her disease. In 1969, we had to reoperate on her for a new area of involvement in the jejunum. She was then well until just prior to this last admission when she developed the symptoms in the protocol. Actually, she was referred in this last time not only for the abdominal pain, but because of a peculiar heart murmur that her physician had not heard previously. I saw her on a consult from Dr. Rossing. At that time, she had fever and abdominal pain, but still had bowel sounds. Her abdomen was distended and she had tenderness with rebound in all four quadrants. I was sure that she had peritonitis.

DR. BARLOW: How common is a free perforation into the abdominal cavity in regional enteritis?

DR. SHREVES: Very rare. Perhaps now we could see some of the x-rays on this patient.

*DR. L. J. LARSON: These are representative films. The 1965 films show extensive involvement of the mucosa in what is probably the low jejunum and distal jejunum and proximal ileum. The terminal ileum is normal. These films of gastrointestinal series from 1969 show a narrowed area in the mid-ileum with displacement of adjacent loops of bowel and dilated proximal loops of small bowel. (Figure I) This is another film showing a narrowed segment with abnormal mucosa. Because of the overhang in this region. I wonder about malignancy. However, I understand this is not the case.

Figure I

Arrow points to area of narrowing small bowel.

*Radiologist, Sioux Valley Hospital

Now here is the film from the present admission including a flat plate of the abdomen, upright and lateral decubitus. There is scattered gas in the small and large bowel as well as a small amount of gas in the rectum. These findings suggest an adynamic ileus rather than small or large bowel obstruction. There is no free air. The disturbing feature is the absence of gas in the descending colon. A particularly striking finding is a soft tissue mass in the left lower quadrant. With the patient's history, I would question abscess formation due to a perforation. This is a follow-up film showing gas in the small and large bowel. This is even more suggestive of adynamic ileus on this film and again we have the left lower quadrant mass. There is a density overlying this mass which I believe is a bony sclerosis of the ileum. Again, I feel that this represents an abscess with perforation. (Figure II)

Figure II

Arrows points to soft tissue mass on plain film.

DR. BARLOW: Would any of the interns like to suggest what happened to this patient?

**DR. LARRY LYONS: I think she perforated the ileum.

***Dr. W. ARNESON: Were there any barium enemas done? Did the patient have diverticulitis or diverticulosis?

DR. LARSON: There were two barium enemas done and both of them were normal.

DR. SHREVES: An operation on the patient's abdomen showed very striking findings. The abdomen was filled by what appeared to be liquid non-smelling stool. On further search I located the problem in the excluded loop. There was a perforation just proximal to the blind end of the loop. The loop was dilated because of a proximal stricture. I did not appreciate any other abnormalities at this time. However, there was a surprise finding in examination of the specimen. There were also abnormal findings with small nodules in the liver, one of which I biopsied. I was very much worried about carcinoma but was not sure of its origin.

DR. BARLOW: We received the resected loop. There was a stricture in the proximal portion of the resected loop which was nearest to its entry into the bowel. Distal to this the bowel was distended and in this distended area was a free perforation as Dr. Shreves has described. At the very end of the blind segment, there was a marked irregularity of the mucosa which on section showed adenocarcinoma of the bowel. (Figure III) Examination of the biopsy of the liver showed metastatic adenocarcinoma similar to that in the blind loop of small intestine. (Figure IV)

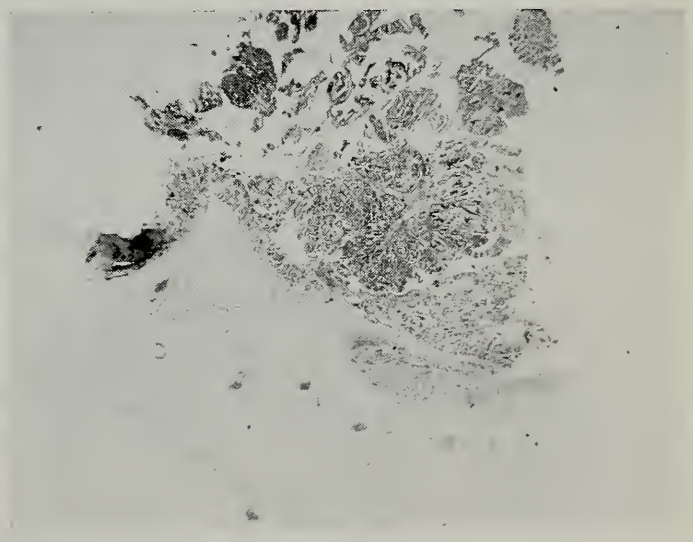

Figure III

Adenocarcinoma metastatic to the liver.

ANATOMIC DIAGNOSES

1. **Adenocarcinoma of small bowel in excluded loop of small intestine.**
2. **Stricture of excluded loop with perforation and peritonitis**

**Intern, Sioux Valley Hospital
***Surgeon, Sioux Valley Hospital

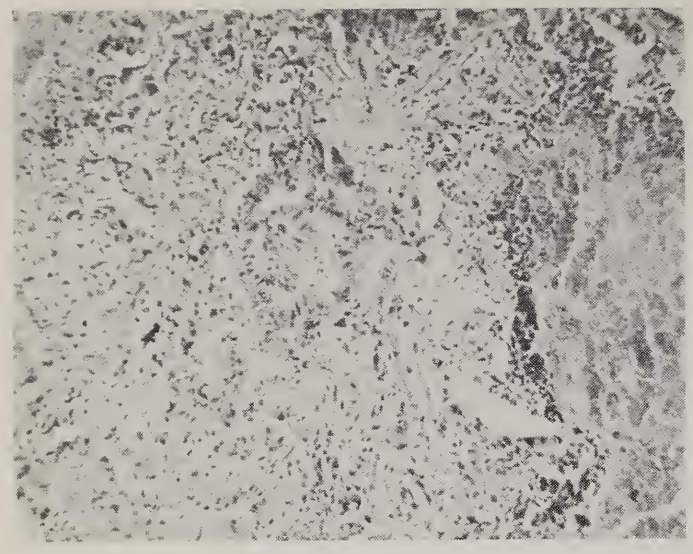

Figure IV
Adenocarcinoma arising in excluded loop of small bowel.

In addition to the striking findings already, the patient had an interesting post-op complication.

DR. SHREVES: Yes, indeed. About four days post-operatively, the patient was in shock. It has been said that one of the most difficult decisions in surgery is when to operate. However, an even more difficult decision is when to reoperate. Because of distention and falling hematocrit, I did reoperate and found about three pints of blood in the abdomen. I thought sure that I had missed a bleeder and looked carefully for this. I tied all the bleeders, but did note that every time I handled the bowel there were small areas of bleeding. She recovered from surgery, but continued to ooze. I then got a prothrombin time and found it was 56 seconds. After Vitamin K therapy, within 12 hours the prothrombin time was normal. The patient did very well after this. She had a number of reasons to be bleeding. First of all, she had marked disease of the small bowel with absorption problems. Secondly, she had multiple antibiotics because of peritonitis for some time. I am sure that the antibiotics depressed her small bowel flora which produce Vitamin K. I think you must consider depressed Vitamin K after bowel surgery on any patient who is on massive doses of antibiotics.

*DR. SANFORD McDONALD: Do we know why the patient had a bacterioides septicemia? Did she have bacterial endocarditis and was this the cause of a murmur?

**DR. WILLIAM O. ROSSING: Unfortunately, I found out that this patient died shortly after she was discharged from the hospital. This, of course, was not unexpected as we knew the patient had metastatic carcinoma. I am afraid we cannot answer all of these questions.

DR. SHREVES: I think it is very important to conserve bowel in these patients. This is why I bypass the affected bowel in most patients. The bowel usually quiets down, and they can have amazing results. This lady had 20 years of good life before her complications.

†DR. ORTMEIER: Dr. Arneson, how do you treat these patients?

DR. ARNESON: If there is a localized area I resect it. I think that this is often helpful. If there is recurrent disease, one has to treat many of these recurrences by medical means. Certainly, if the patient has complications with fistula and perforations, resection may be necessary.

DR. LARRY LYONS: What is the etiology of this disease?

DR. SHREVES: I don't think anybody knows. There are theories of allergy as well as a theory of milk hypersensitivity. I have seen some of the original experimental work on milk hypersentitivity and this is why these patients are often taken off milk.

DR. ARNESON: I think one must take into consideration that these patients do have psychiatric problems. And one cannot dismiss that the cause of this disease is, in part, psychiatric.

DR. SHREVES: I am sure that they do have psychiatric problems, but I feel that most of their problems are secondary to the disease rather than primary.

DR. BARLOW: I would like to review regional enteritis briefly and, in particular, this complication of carcinoma of the small intestine. I am handing out a sheet of some of the literature describing carcinoma of the small bowel as a complication of regional enteritis. (Table I) The carcinoma may involve the bowel which is functioning or may involve a blind loop as in this case. As you can see by this short list of cases the complication is relatively rare and certainly not as frequent as carcinoma arising in the colon in ulcerative colitis. However, because of the disease occurring in a number of

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**Specialist in Internal Medicine, Sioux Valley Hospital; Clinical Faculty, School of Medicine, University of South Dakota

†Resident in Pathology, Sioux Valley Hospital

Table I

REGIONAL ENTERITIS AND CARCINOMA

Year	First Author	Age	Sex	Comments
1948	Warren	(not given)		10 yr. of abdominal complaints; adenocarcinoma in R. E. of colon
1954	Van Patter	(not given)		Carcinoma in R.E. lesion of colon
1956	Ginzburg	30	M	Anaplastic carcinoma in R.E. involved jejunal segment; liver metastases
1957	Kornfeld	36	F	8 yr. of R.E. adenocarcinoma distal to ligament of Treitz; metastases to liver, lymph nodes, lung and bone
1958	Crohn	(not given)		Carcinoma in R.E. lesion of colon
1958	Lear	(not given)		Discovered carcinoma incidental to ileal resection for R.E.
1959	Buchanan	47	M	3 yr. of R.E. adenocarcinoma in resected specimen of terminal ileum; lymph node metastases
1959	Weingarten		F	21 yr. of abdominal complaints and R.E.; well-differentiated adenocarcinoma of jejunum with metastases to lymph nodes, liver, lungs, uterus, and ovaries
1960	Weingarten	28	F	5 yr. of R.E.; all layers involved ileum infiltrated with adenocarcinoma except serosa
1960	Steele	38	M	14 yr. of abdominal complaints; 11 yr. of ankylosing spondylitis; anaplastic adenoca. adjacent to fistula at autopsy involving all layers and extending into lymph nodes
1960	Zisk (Case 1)	61	F	Brief history of abdominal complaints; resection at autopsy revealed R.E. & adenoca. in terminal ileum; glandular metaplasia.
1960	Zisk (Case 2)	62	F	20 yr. of abdominal complaints; adenoca. and R.E. identified in ileum in resected specimen
1960	Almond	48	F	2½ yr. of abdominal symptoms; resection revealed R.E. and adenoca. of ileum
1963	Hoffert	40	M	Well-differentiated adenoca. in terminal ileum infiltrating to serosa & adjacent fat
1964	Berman	51	M	35 yr. of abdominal cramps & diarrhea; regional enteritis & well-differentiated adenoca. extending to serosa in involved ileum of resected specimen
1964	Wein	48	M	20 yr. of R.E.; adenocarcinoma found in ileocecal valve of resected specimen in area of R.E. involvement
1968	Cantwell	60	M	31 yr. of R.E.; carcinoma in resected ileum; metastases found at autopsy; signet ring cell type
1968	Sheil	40	F	5-7 yr. of intermittent abdominal complaints; well-differentiated adenoca. in stenotic terminal ileum
1968	Sheil	50	F	11 yr. symptoms; mucinous adrenocarcinoma in rectum with R.E. lesion
1969	Tyers	32	M	9½ yrs. of abdominal complaints; pathologic diagnosis, multicentric carcinoma of jejunum arising from chronic regional enteritis
1969	Magnes	71	M	14 yr. of regional enteritis before unicentric carcinoma of terminal ileum
1969	Wyatt	33	M	Adrenocarcinoma of ileum
1970	Farmer	43	M	4 yr. of symptoms before perforated adenoca. jejunum
1970	Farmer	61	F	7 yr. before adenocarcinoma of jejunum
1970	Schuman	35	M	Adenoca. in excluded loop of ileum
1970	Goldman	30	F	Carcinomatosis after 9 yr. of regional enteritis
1971	Rha	38	M	Carcinoma of terminal ileum

young people and because carcinoma of the small bowel in itself is a rather rare entity, I think we cannot dismiss the fact that carcinoma of the small bowel must be considered one of the rare complications of regional enteritis.

In a recent review on Crohn's Disease[3], Lenhart-Jones and Morson suggested that Crohn's Disease is probably a better term than regional or terminal enteritis. This is because the disease may not involve the terminal ileum, as it did not in this case; and it may affect any part of the gastrointestinal tract from the stomach to anus, often spreading to the perianal and pericolostomy skin.

DR. SHREVES: Yes, it is very important to note that in these patients you should not operate on the frequent perianal fistulae that they get because they do not heal.

DR. BARLOW: The histogenesis of this disease is not well understood. As it has been pointed out, some people feel that this disease is psychogenic. Others feel that there is a genetic pre-disposition because it runs in families. The hypersensitivity to milk or other foods has been briefly mentioned by Dr. Shreves. Because of enlarged nerves in the intestine, neuromatous hyperplasia has been suggested. Probably the most likely is that there is involvement of the lymphatics with lymphangiectasia and lymphedema.

DR. SHREVES: Yes, Crohn's Disease has been described as elephantiasis of the intestines. I think this is a rather clear cut way to understand how this disease develops.

DR. BARLOW: I have here a specimen from another case which I would like to show (Figure V). This case is absolutely classical as it involves the terminal ileum and stops there, not involving the large bowel. Of course, as we will see, regional enteritis can involve the large bowel. In this case there is discontinuous and serpiginous alteration of the mucosa with heaped-up mucosal folds giving a cobblestone appearance. I think from the marked thickening of the whole wall of the bowel, it is obvious why this often is given the name transmural enteritis. The whole wall is involved. There is marked edema and often fibrosis of the wall giving the bowel a tremendously rigid appearance. This has often been compared to a garden hose or eel in rigor mortis. The strictures, of course, may be multiple giving rise to the so-called string sign described by radiologists and there may be discontinuous areas of involvement (the so-called skip areas). In this specimen also, fistulae can be seen undermining the area of the ileocecal valve. One of the major complications of this disease, of course, is fistulae with other organs or with other loops of bowel. Granulomas occur in bowel wall or in surrounding lymph nodes. (Figure VI)

Figure V
Typical regional enteritis from another case. Note 1) marked thickening and rigidity of entire wall, 2) cobblestone appearance to mucosa (arrow) as compared to normal mucosa at left of arrow, and 3) "creeping of fat" up on bowel wall (above caption).

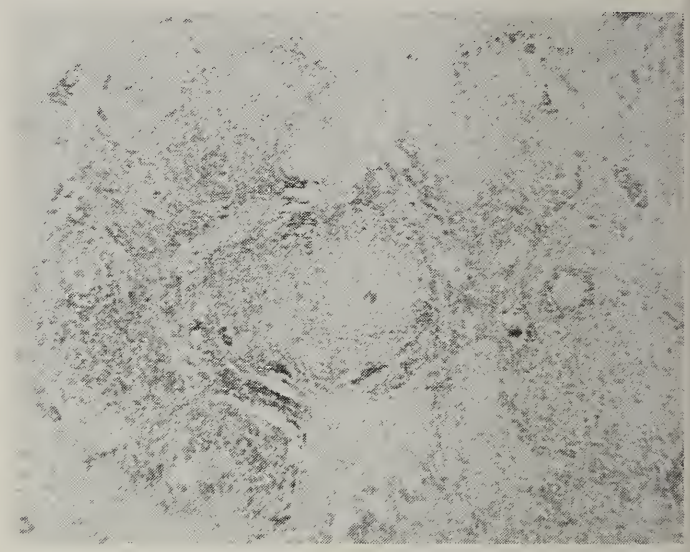

Figure VI
Granulomas from lymph node in regional enteritis.

The clinical features of this disease are partly shown by this lady. The patient may have fever, weight loss, lassitude, diarrhea, or abdominal pain. A simple upper gastrointestinal series, as Dr. Shreves has pointed out, will not give the diagnosis. A small bowel follow through has to be done. Often the patient is felt to have psychiatric abdominal complaints

and unless a small bowel follow through is done, the diagnosis of regional enteritis cannot be made. The patient may present with anal fistulas or fissures or anal ulcers or abscess. Occasionally the patient may present with an abdominal mass due to abscess or matted loops or adhesions.

The usual complications involving intestinal tract are fistula formation (as mentioned above), perforation or obstruction. All of these have to be attacked surgically. Here is a list of other complications that may arise in regional enteritis. You will note that a number are extra-intestinal.

COMPLICATIONS OF REGIONAL ENTERITIS

A. Ankylosing spondylitis
B. Polyarthritis
C. Erythema nodosum
D. Apthous ulceration of mouth
E. Pyoderma gangrenosum
F. Linear ulcer of groin
G. Ocular inflmmation
H. Cirrhosis (Rare)
I. Amyloidosis
J. Granulomas of liver
K. Renal stones
L. Obstruction of the ureter
M. Adenocarcinoma
N. Malabsorption due to fistulae or blind loop with poor absorption of Vitamin B^{12}, bile salts and other nutrients.
O. Anemia
P. Hemorrhage
Q. Toxic megacolon (If it involves the colon)

Microscopically the lesion is transumural; all layers of the bowel are involved. Granulomas are very helpful when seen, but they are not seen always. There is marked edema of the submucosa and serosa. As Dr. Shreves has pointed out, there is marked lymphedema.

DR. SHREVES: I think we have to point out that this disease may involve the colon as well as the small bowel. This is so-called granulomatous colitis. I have had a recent patient whose X-ray demonstrated this.

DR. BARLOW: Yes, I think it is important to make a distinction between so-called regional enteritis involving the colon or so-called transmural or granulomatous colitis, and the other entity called ulcerative colitis or mucosal colitis. There are a great many differential criteria but, in general, it must be remembered that ulcerative colitis is often referred to as mucosal colitis and is a disease which involves the superficial mucosa with marked ulceration, hemorrhage, and increased vascularity. The entire mucosa is involved with ulceration and congestion. These patients have problems with bleeding and irritation. In contrast, granulomatous colitis or regional ileitis of the colon involves all layers of the bowel with marked thickening and edema. There are ulcers with normal intervening mucosa. There is a lower incidence of malignancy and degeneration in granulomatous colitis than in ulcerative colitis, and granulomatous colitis often involves the right side of the bowel with involvement of the ileum more commonly than does ulcerative colitis. However, as you know, ulcerative colitis certainly may involve the terminal ileum. Fistulae are more common in regional enteritis and carcinoma is more common as a complication of ulcerative colitis. The distinction between these two diseases is of some importance and can often be made by the radiologist. Ulcerative colitis is more frequent and seems to respond better to therapy. A last important feature is that there are often discontinuous lesions in transmural colitis which are not as frequent in ulcerative colitis. I feel that the main distinction is the superficial nature of ulcerative colitis as opposed to the transmural nature of granulomatous colitis.

*DR. H. CHARLES SLATER: What is the prognosis in this disease?

DR. BARLOW: According to Lenhart-Jones and Morson, one in ten of these patients die of the disease. One in four will require further resection after initial resection and one in four will require further operation after initial resection or a bypass.

Therefore, the disease is a chronic recurrent disease which should be treated conservatively with supportive treatment and the complications often have to be handled surgically. I certainly agree it is important to conserve as much bowel as possible, as what may be normal bowel at one time may become abnormal bowel later in the patient's course.

(Continued on Page 35)

*Pathology Intern, Sioux Valley Hospital

This is your MEDICAL ASSOCIATION

News Notes • Changes • Births • News

ATTENTION DOCTORS— If you have not returned the questionnaire sent to you from the Medical Education Study Committee, please complete it now and return it to the executive office, 711 North Lake Avenue, Sioux Falls, South Dakota 57104.

I. D. Eirenberg, M.D., Sioux Falls, discussed "Diseases of the Skin" for the sophomore class at the University of South Dakota Medical School as a visiting lecturer along with Donald Alcott, M.D., of California. Both are native South Dakotans, alumni and classmates of the University of South Dakota School of Medicine and graduates of Rush Medical School.

* * * *

John W. Jowsey, M.D., an orthopedic surgeon, has opened an office in the Medical Arts Building at Dakota Midland Hospital, Aberdeen. Dr. Jowsey graduated from the University of Manitoba Medical College in Canada and took his residency training there from 1959 to 1964. He is certified by the American Board of Orthopedics.

L. L. Parke, M.D., Canton, died at the age of 83. He graduated from the University of Illinois Medical School in 1913 and practiced in Canton for fifty years prior to his retirement in 1970. Dr. Parke is survived by his widow, a daughter, Mrs. Simon Bol, Largo, Florida; and two sons, George, Indianola, Iowa, and Lowell, Wilmington, Delaware.

YOUR CONTRIBUTION TO THE SOUTH DAKOTA MEDICAL SCHOOL ENDOWMENT FUND IS NEEDED

The Medical Library at the University of South Dakota has received two grants; one for $24,500 to be used in a three year budget period for the acquisition of books, monographs and journals and for binding and cataloging and the other for $55,583 for renovation and refurbishment of the Library. The University of South Dakota School of Medicine has received a $52,223 grant from the Robert Wood Johnson Foundation based on the number of women, rural and minority students attending the school. This grant will be used for student aid.

* * * *

W. W. Taylor, M.D., Aberdeen, President of the South Dakota State Medical Association, made his official visitations to the Watertown District Medical Society, the Mitchell District Medical Society and the Whetstone Valley District Medical Society. Dr. Taylor discussed the forthcoming proposal of the Medical Education Committee regarding the future of medical education in South Dakota.

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